LONDON JOURNAL OF MEDICINE,

A MONTHLY

Record of the Medical Sciences.

FEBRUARY 1851.—No. XXVI.

ORIGINAL COMMUNICATIONS.

ON THE PHYSICAL EXAMINATION OF THE ABDOMEN, IN HEALTH AND DISEASE.

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(Continued from page 6 of last Number.)

EXAMINATION OF THE ABDOMEN BY PALPATION.

THE method of Palpation of the Abdomen is a subject of importance, and demands a few directions and cautions. The parts of the hands best qualified to feel are the palmar surfaces of the fingers, the pulpy portions of the last phalanx being endowed with the finest touch. But they should be flatly applied, at least at first; as nothing is more likely to start the abdominal muscles into rigid contraction than to poke them abruptly with the ends of the fingers. For the same reason, the observer should not be too much above the patient, and if the bed on which the patient is placed is low, the practitioner should sit or kneel beside it, in order to bring his arms and hands more on a level with the abdomen. It is equally obvious that the observer's hands should be comfortably warm; not only for the sake of the patient, but also because the touch is more sensitive in that condition. The posture of the patient generally best suited for examination is the supine, on a mattress or sofa, with the limbs lying straight, but without the least straining or muscular effort. It is often recommended to draw up the knees in order to relax the abdominal muscles; but this action is very apt to produce just the contrary effect, and further interferes with the free accessibility of the lower parts of the abdomen to the observer's hands. It is the great object, that whilst the body and limbs are so equally and completely supported as to be in a state of perfect relaxation, the whole abdomen shall freely admit of the application of the hands to every part, and in every direction. This further suggests, that in all cases requiring nicety in manipulation, the abdomen should be laid bare, the clothing sufficiently put out of the way, and that either the bed be narrow enough or the patient be moved to each

edge of it, so that the observer may be able, if necessary, to examine from both sides; this is especially requisite in the deep palpation to be described further on.

The kind of tact by which the different properties of *shape, softness* and *hardness, elasticity, weight,* etc., are distinguished, is so instinctive as scarcely to be capable of description; but it may somewhat guide a novice to say, that we trace the *shape* by applying the flat fingers and gently rubbing them over and between the prominences and depressions. We test the *softness* or *hardness* by pressing gently with the pulpy surfaces of the last phalanx on the successive parts over which the hands are passed; that which readily yields being soft, whilst the hard resists the pressure; the *elastic* opposes to it a spring, which, although yielding to strong pressure, sensibly pushes away the fingers as their application is relaxed. *Weight* is felt by lifting upwards a part, and observing what force is required to do this, and with what force it presses down again on the fingers as they are slightly withdrawn: trying the weight of part of the abdomen can be practised only in the lumbar and lateral regions in the supine posture; the anterior regions may be in a measure lifted and weighed by the hands, when the patient lies on his face, or sits leaning the body forwards; and this kind of examination is often of much importance in the diagnosis of ascites and solid visceral enlargements.

In the healthy state, the abdomen is in every region soft and moderately elastic; it feels smooth and uniform to the hand rubbed gently over it; when pressed superficially or deeply, its resistance is elastic and increasing with the pressure; when percussed on one side, no shock or fluctuation is felt on the opposite side; the different parts, when lifted, feel pretty equal in point of weight. This uniformity of soft elasticity represents the intestinal canal in its normal state, containing a moderate amount of gaseous, liquid, and semi-solid matter pretty uniformly distributed through it. As observed by inspection, so slight prominences may often be *felt,* corresponding with the stomach, the cæcum, and occasionally below the umbilicus; but these also feel soft and elastic as other parts, and do not detract from the generally equable character of the healthy abdomen.

Variations from this normal state of the abdomen may arise from alterations in the walls; and it will be well to advert to these before describing those caused by disease of the interior. Excess of fat gives a fulness which will feel firm and elastic, or soft and flabby, according to whether it is on the increase or on the decrease; but it may be known to be fat by its peculiar lumpy feel on the surface, so that it may be pinched up by the fingers and thumb; and in this way the thickness of the layer may be estimated. In the case of very fat paunches, there are masses of fat also in the omentum and mesentery; these form the large rounded prominence of the *pot-belly,* which renders the palpation of the abdominal viscera very difficult. In order to reach them in such a case, it is necessary to press firmly into the fat, and then to feel by moving the hand in a circular, or backward and forward direction; this may best be accomplished in the iliac and hypogastric regions, where the fat in the walls is not so thick as in the central regions of the abdomen. Where a corpulent person has lost much flesh, which is often the case in chronic disease, the loose

flabbiness of the pendulous abdomen may embarrass the practitioner; and the more so, as the fat which is left often has a granular or knotty feel, which might be mistaken for formations within the abdomen. These inequalities are to be distinguished by their being superficial, and capable of being grasped between the fingers and thumb; and the examination of the deep parts is to be effected by the hands steadily pressed inwards, pushing aside these inequalities, and rolling about or handling in divers ways the viscera underneath. Œdematous walls are to be treated in a similar manner, and are distinguished by their inelastic boggy feel, and pitting on pressure.

Permanent tension of the abdominal muscles is a common impediment to the palpation of the abdomen; it causes a feeling of superficial hardness, especially in the direction of the recti muscles.[1] If there be any doubt as to its seat, it may be dissipated by keeping the flat hand steadily and firmly applied with increasing pressure for a few minutes, whilst the patient's attention is taken off by conversation on another topic. The muscles will then be found either to relax altogether, or so much to vary their degree of tension as plainly to reveal the cause of the hardness. This test is equally successful, whether the muscular tension be caused by nervous irritability, or by actual pain or tenderness; for even in the latter case, flat pressure, gently and very gradually applied, may be managed so as not to increase the pain.

Extreme flaccidity of the walls of the abdomen might be supposed to remove all sources of fallacy in the manual examination of the abdomen; and it is, in fact, an easy matter to feel the place, shape, and consistence of almost every abdominal viscus: yet under such circumstances it is not very uncommon to find the pulsation of the abdominal aorta mistaken for an aneurism, and I have known the anterior convexity of the lumbar spine mistaken for a tumour. These errors arise from the observers not being aware how deep in the abdomen the hand reaches, and would be readily corrected by placing the other hand behind the back, and by thus feeling how small is the distance between the two hands.

Palpable signs of Disease in the Abdomen. *Fæculent accumulations* occur chiefly in the large intestines, and the lower part of the ileum; but the remaining portions of the small intestines are commonly more or less distended with gas. Hence the abdomen is generally enlarged; and the fulness feels more elastic around the umbilicus; and more resisting, yet not absolutely hard, in the iliac and hypochondriac regions. The course of the large intestine may often be traced; the greatest prominences being usually caused by the cœcum and transverse arch; and, if the abdominal walls are not tense, it is quite possible, by the pressure of the fingers, to distinguish the fæculent masses by, their substantial but inelastic feel, from the tympanitic contents of other parts of the intestine. If the accumulation be considerable, there is a very appreciable difference in the weight of different parts of the abdomen, as tested in the mode before described. If there be an excessive accumulation of air in the intestines, this dis-

[1] The tension of the rectus on the right side is often greater than that on the left, and I have frequently known it to be mistaken for enlargement of the liver. It does, in fact, sometimes arise from tenderness of the liver, which induces instinctively a firmer contraction of the muscles over it, to avert the pain of pressure.

tends them so much that the fæculent masses cannot be felt, and the whole abdomen has a tight elastic feel of rounded shape, but commonly showing more prominence in some parts than in others.

In *colic*, and constipation with severe *colicky pains*, there may in most instances be felt at parts, depressions, corresponding with contracted portions of intestines, which are hard and knotty, in comparison with the tympanitic elasticity of other parts. The abdominal muscles are often spasmodically contracted over these painful parts; but they become eased and relaxed under the steadily increased pressure of the flat hand. In these cases the weight of parts of the abdomen, as tested by lifting them when the patient is in the prone or leaning forward posture, is less than usual; the contents being proportionally lighter, and prevented from ponderating by the tight contraction with which they are bound.

The *tympanitis* of low fever and sinking states, of paraplegia from destruction of the lower portions of the spinal cord, or serious injury to its reflex function, is distinguished by the more uniform and less tense elasticity of the abdominal enlargement. The deficient tone of the intestines and abdominal muscles in these cases causes a larger and easier distension; and although the quantity of air pent up may be much greater, the tightness and resistance is less than in colic.

The presence of *liquid in the peritoneal sac* is capable of altering, in various ways, the palpable qualities of the abdomen. The size and shape may be felt to be changed in the same manner already described as obvious on inspection:—that is, the size is more or less enlarged, with bulging projections in the most dependent parts: the shape of the parts occupied with fluid is smoother, and more uniformly rounded than usual: and in extensive accumulations the surface may feel polished. But the resistance as felt by pressure is also distinctive: it is peculiarly soft, inelastic, and heavy. These qualities are most obvious where the abdominal walls are thin and flaccid; and under these conditions, there is no difficulty in detecting by the feel only, even moderate quantities of fluid in the abdomen. Ponderating to the most dependent parts, the fluid is to be felt in the flanks in the supine posture; at or near the umbilicus in the prone posture; in the iliac region when the patient lies on a side; and in the hypogastric region, when the patient sits, leaning forward. The soft and mobile yet weighty feel of these dependent parts, is to be compared with the more elastic and lighter resistance of other regions occupied by air-filled intestines; and by making the patient change his posture, allowing two or three minutes to give time for the subsidence of the liquid, we may have the further evidence that it is free in the peritoneal sac, if we feel it still showing itself in the most dependent parts. It does not often happen that there is enough liquid in the intestines to give anything like the same superficially soft and heavy sensation under the fingers; and when there is, it may be distinguished by its not thus gravitating from one region to another, as well as by its giving less sensation of superficial softness, and more of a gurgling or elastic feel, from the presence of air.

In proportion as the quantity of fluid in the peritoneum becomes greater, the distension of the walls also increases, and hereby the softness of the abdomen is diminished, whilst the weight is more pal-

pable. The liquid still gravitates in greatest volume to the lowest parts; but it also spreads more or less upwards in a layer between the viscera and walls of the abdomen; and gives a smoothness of surface, and uniformity of the peculiar weighty fluctuating resistance which characterizes its presence. So long as the distension is moderate, the air-filled intestines will usually float on the surface sufficiently to be in contact with the uppermost portion of the abdomen; and this will of course vary with the posture of the patient; that part can generally be distinguished by a delicate touch, which may be verified by the more obvious difference of percussion.

But there is a palpable sign of the presence of liquid, often manifest with a moderate degree of distension, more characteristic than any sign, not excepting those of fluctuation and percussion: I mean the striking of the fingers against the liver, or any other resisting body beyond the surface of liquid. It is plain that this sign will be most evident where there is considerable enlargement of the liver, spleen, or some other solid body; and as the liquid and solid become both more distinguishable on account of the contrast in the resistance which they respectively offer to the fingers, the sign serves to detect the presence of both. Thus a slight enlargement of the liver, reaching two or three inches below the margin of the ribs, may not offer resistance enough to be distinctly palpable by itself; but if there be a layer of serum interposed, and this be abruptly displaced by the fingers, they will strike the solid body with a distinct shock which will unequivocally prove the presence of both fluid and solid. It so happens that in a large proportion of the cases in which there is fluid effused in the peritoneal sac, there is also more or less enlargement of the liver, or some other large viscus; hence this sign becomes more generally useful. By its means I have been enabled to detect the presence of even thin deposits on the omentum and intestines, and of deeper seated mesenteric and ovarian tumours. Solid fæculent masses in the intestines may give a similar resistance to the fingers under a layer of fluid; and it is important that this source of error should be avoided, by having the bowels well cleared by aperients before the examination.

In manipulating for this sign of liquid and solid resistance, the fingers should be gently pressed more or less into the walls, and then a deeper impulse is to be abruptly made with their ends, so as to strike at any body which may offer resistance, and which then meets the stroke. Over an enlarged liver or spleen, this sign is best felt in the sitting or erect posture; or if the quantity of fluid be considerable, in the prone or leaning forward position. Indurations of the omentum and intestines are better detected when the patient lies on the back. In considerable enlargements of the spleen or left kidney, I have found this sign in the left lumbar region; but in other cases, the front of the abdomen is its usual seat.

On two occasions, through a modification of this sign, I have diagnosticated the presence of something adhesive on the striking surfaces. One was a case of ovarian tumour with ascites; the other, chronic peritonitis with enlarged liver. In both, the fingers readily felt the displacing fluid and the striking against the solid underneath; but on withdrawing the pressure, the surfaces in contact could distinctly be

felt to adhere for an instant before following the fingers, being retained by something adhesive. This sticking sensation was plainly felt by several students, to whom I pointed it out at the time, ascribing it to a coating of adhesive lymph. The post-mortem examinations did not occur till long after, but there was in both cases a deposit of false membrane on the surfaces which justified this inference. Probably this sign may prove useful in aiding to detect the presence of the low forms of peritonitis which frequently accompany abdominal tumours.

Fluctuation has long been recognised as a characteristic sign of the presence of fluid in the abdomen. It is commonly felt on applying the left hand on one side of the abdomen, and striking abruptly on the opposite side with the right hand, so as to direct the impulse towards the other hand. A wave is moved by the impulse, and rapidly passing to the opposite side, gives to the left hand the soft shock of fluid in motion. This wave-stroke is transmitted from one side to the other only when there is a continuous layer of fluid. If a fold of intestine rises to the surface in the centre of the abdomen, it intercepts the wave. Hence it often happens, where the quantity of liquid is moderate, that the fluctuation is felt at the lower part of the abdomen in the sitting or standing posture, and not when the patient lies on his back. The distinctness and character of the fluctuation vary according to circumstances that can be pretty exactly defined. The most remarkable degree is that produced when the abdomen contains much fluid, whilst the walls are thin and their tension is increased by a good deal of air in the intestines beneath the fluid. This adds to the elasticity of the walls; and wherever struck, they instantaneously transmit the shock with a kind of spring to every part of the surface; and so faithfully, that if a quick tattoo be played with the fingers on any part of the abdomen, each stroke can be felt in every other part with the greatest nicety. This highly vibratory fluctuation may therefore be considered a sign of flatus in the intestines, together with liquid in the peritoneum. Nor is this indication unimportant in its practical relations; for it leads to the use of mercurial purgatives and carminatives; which, by dispersing the wind, not only relieve the tension of the abdomen, but also bring the organs into a state more favourable for the absorption of the fluid.

When the distension of the abdomen depends on an excessive quantity of liquid alone, the fluctuation is still very distinct, but different in character from the last variety. It is less vibratory and spring-like, strikes the feeling hand with a deader, heavier shock, and requires a stronger stroke from the other hand to set it in motion. This kind of fluctuation, together with the peculiarly weighty feel of the abdomen in every part when lifted with the hand, and the equally dull sound on percussion, is a conclusive proof of the presence of a vast quantity of fluid, such as can seldom be removed without the operation of tapping. In fact, the same weight and pressure which we feel through the walls of the abdomen, is also oppressing and obstructing the organs of circulation, absorption, and secretion, to such a degree as to impede their functions, and to render them little amenable to purgatives and diuretics, which ordinarily excite their action. Hence, with such a state of abdomen, we find the urine and fæces

continue very scanty and vitiated, in spite of all the remedies we employ.

A moderate amount of liquid in the peritoneum requires more care to develope its fluctuation. It is most distinctly felt in the iliac regions when the patient is in the sitting or standing posture, which not only accumulates the fluid in greater quantity in these parts, but also thereby gives the requisite tension to the walls. If the liquid is in still smaller quantity, it may be insufficient to reach from one side of the abdomen to the other; and then it must be tried for in a more limited space, such as in hypogastric or in the one iliac region in the sitting posture. A delicate method of detecting small quantities of fluid by fluctuation, is by keeping the patient for some minutes lying on one side, then after he has turned nearly but not quite on his back, feeling for the fluctuation with the fingers lightly applied to the iliac region of the undermost side, whilst the other hand gently taps the flank or the hypogastric region; or the position of the feeling and striking hands may be reversed. By this expedient the fluid accumulates in contact with the walls where they are thin, and renders evident the gentlest fluctuation.

In feeling for such delicate and superficial fluctuation, it is important that the fingers should be very lightly applied; not pressed into the walls: otherwise the most sensitive parts of the fingers will be out of the reach of the wave. The soft and weighty feel of the liquid, as before described, may be taken in confirmation of the sign of fluctuation. The sensation of undulation itself, in fact, comprises more or less of the same impression of something heavy, soft, and in motion. It is important not to mistake for fluctuation an undulatory movement excited by percussion in the soft fat of the walls. This may be distinguished by its more uniform diffusion over the surface of the abdomen; by its not occurring more in dependent parts than in others; by its less liquid and weighty impulse against the fingers; and by its occurring chiefly in fat subjects, in whom the flabby adipose texture can be pinched up between the finger and thumb in such quantity as to prove that the walls are too thick to transmit any very superficial feeling of fluctuation from liquid in the abdomen. In fact, these cases of flabby fat abdomen are those in which small quantities of liquid are less readily detected by fluctuation, than by the comparatively greater weight and duller stroke-sound of the most dependent parts.

The discovery of a small quantity of liquid is of great importance in some cases; as for example, in distinguishing peritonitis from colic or neuralgic abdominal pain, and from tympanitis with which it is sometimes combined: and in detecting the first commencement of ascites, when remedies are more likely to be effectual than in the advanced stages. We are accustomed to watch for the signs of fluid effusion as indications of analogous conditions in the pleura; and by careful attention to the tests of palpation and percussion, these signs are not less available in the peritoneal cavity. It is true that we have not the striking contrast of the hollow-sounding lung, and the variations of voice and breath-sounds, to aid in their detection; but, on the other hand, we have the combined tests of percussion and palpation, and above all, we have in changes of posture of the patient the means of

concentrating the liquid in a dependent part, and of transferring it to another, in a degree unattainable with pleural effusion.

An obscure fluctuation may sometimes be elicited in the liquid contained in portions of intestine, in the urinary bladder, and even in the gall-bladder, and in cysts connected with the ovarium, the liver, the kidney, and other viscera; and if the quantity of fluid be considerable, it will manifest somewhat of its property of weight and soft resistance. But liquid thus contained may be distinguished from that free in the peritoneum, by its more obscure and less superficial fluctuation, and especially in its circumscribed position, which may not be the most dependent, and which is not materially changed with the position of the patient. It is quite possible to have combined, and to distinguish, the two kinds of fluctuation, the peritoneal, superficial, or gravitative, and the visceral, deep-seated, or circumscribed. The detection of the superficial fluid is even easier than usual, for the sac or cyst underneath raises the liquid, and makes it to spread more or less over its surface; which renders the fluctuation more obvious, and affords the additional criterion of the striking by displacement of the superficial liquid, as before described. The deep fluctuation is to be felt by first displacing the surface liquid by pressure, and with the hands thus deeply applied, succussion is attempted, and the contents of the cyst further felt. Change to the prone or leaning forward posture will commonly help in this investigation; as the cyst is often heavier, and, displacing the superficial fluid, comes in contact with the walls sufficiently to be manipulated. When the peritoneal fluid is scanty, the sac is more widely in contact with the walls, and may not be separable by any change of posture. In this case it may be of importance, in reference to an operation, to determine whether the sac adheres to the peritoneal walls; and in one such instance, a case of ovarian cyst, I was enabled to decide this point by the following expedient. The funnel end of a stethoscope being applied to the abdomen where the tumour was in contact with the walls, suction was used at the other end so as to make the walls adhere (by atmospheric pressure) to the instrument; it then became a means of separating the walls from the sac, the peritoneal fluid occupying the space; the presence of which fluid was determined by palpation around the part adhering to the stethoscope, and thus the non-existence of adhesions was proved. This patient was subsequently tapped; and when the fluid again accumulated, the surfaces could no longer be separated, adhesion having taken place around the puncture.

(To be continued.)

HOSPITAL

ON THE WEIGHT OF THE BRAIN AT DIFFERENT PERIODS OF LIFE, ETC.

BY THOMAS B. PEACOCK, M.D., Fellow of the Royal College of Physicians, and Assistant-Physician to St. Thomas's Hospital.

In the year 1846, I communicated to the *Edinburgh Monthly Journal of Medical Science* a series of observations of the Weight of the Brain and other organs of the body, together with various tables, compiled from the whole of the observations collected by the late Professor John Reid[1] and myself, while holding the office of Pathologist to the Royal Infirmary of Edinburgh. Since this time I have made the following observations, which, though comparatively few in number, yet being complete as to the weights of the brain and its several parts, and corresponding in every respect with the two previous series of observations collected by Professor Reid and myself, may form an useful addition to them. The present series contains also several weights of the Brain in young persons, in which the former were especially deficient. The weight employed, I need scarcely add, is avoirdupois.

TABLE I. WEIGHT OF THE BRAIN IN MALES.

The D in the column "Heart" indicates that the organ was diseased.

No.	Age	Weight of the Whole body.	Encephalon.	Cerebrum.	Cerebellum.	P. Varol. & Med. Oblong.	Heart.	Cause of Death, etc.
		lbs. oz.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
1	2	24 0	43 7	38 6	4 8	0 9	2 10	Burn; death in 21 days.
2	2	..	37 0	..	..	..	..	Malformation of the heart.
3	2½	31 8	47 0	42 0	4 4	0 12	2 12	Burn; 6 hours. Liver, 19oz.; spleen, 2oz. 8dr.; kidneys, 3oz. 8dr.
4	3	25 4	38 1	33 3	4 2	0 12	..	Burn; 15 days.
5	4	..	50 10	45 8	4 8	0 10	4 4	Burn; 12 hours.
6	5	21 0	45 12	40 0	5 0	0 12	3 0	Cholera; 6 days. Spinal cord, 11dr. 14grs.; pons Varolii, 7dr. 15grs. Total, 19dr. 2gr.
7	10	45 0	47 12	42 0	5 0	0 12	4 4	Cholera. Spleen, 2oz. 12dr.; kidneys, 4oz. 4dr.
8	11	..	46 0	40 0	5 0	1 0	5 8	Fever. Spleen, 9oz.
9	14	..	48 12	43 0	5 0	0 12	6 2	Fever.
10	15	88 0	50 8	44 0	5 8	1 0	8 0	Instant death from injury.
11	15	..	41 10	36 0	5 0	0 10	6 0	Phthisis.
12	15	..	49 4	43 8	4 12	1 0	10 0	Malformation of the heart. Liver, 45oz.; spleen, 6½oz.; kidneys, 8oz.
13	16	..	43 8	38 0	5 8		..	Fever.
14	20	..	37 0	32 4	4 0	0 12	12 0	Malformation of the heart.
15	24	..	47 8	41 8	5 4	0 12	9 0	Fever.
16	25	..	48 8	42 0	5 8	1 0	..	Fever.
17	21	121 0	51 0	45 0	5 0	1 0	..	Cholera.
18	29	..	52 0	46 0	5 0	1 0	14 0D	Cholera.
19	30	..	59 8	53 0	5 8	1 0	..	Fever.
20	33	..	48 8	42 0	5 8	1 0	12 8	Pleuropneumonia; 3 weeks.
21	32	..	48 0	..	..	..	16 0	Diseased heart. Liver, 80oz.; spleen, 13oz.; kidneys, 14oz.
22	37	99 0	49 0	43 0	5 0	1 0	9 0	Fever and erysipelas.

[1] Edinburgh Monthly Journal of Medical Science. April 1843.

No.	Age.	Weight of the Whole body.	Weight of the Encephalon.	Weight of the Cerebrum.	Weight of the Cerebellum.	Weight of the P. Varol. & Med. Oblong.	Heart.	Cause of Death, etc.
		lbs. oz.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
23	42	..	46 8	41 0	4 10	0 14	..	Chronic diarrhœa.
24	45	..	52 12	45 8	6 4	1 0	10 0	Phthisis.
25	51	..	45 0	39 8	4 8	1 0	13 0D	Bronchitis.
26	50	..	56 4	50 0	5 8	0 12	14 0D	Erysipelas; 9 days.
27	60	..	51 0	45 0	5 0	1 0	..	Cholera.
28	65	..	47 6	41 4	5 6	0 12	12 8D	Intussusception.
29	72	..	42 4	37 0	4 8	0 12	14 0D	Morbus cordis et hepatis.
30	78	..	48 0	42 0	5 0	1 0	18 0D	Injury of the head.

TABLE II. WEIGHT OF THE BRAIN IN FEMALES.

No.	Age.	Weight of the Whole body.	Weight of the Encephalon.	Weight of the Cerebrum.	Weight of the Cerebellum.	Weight of the P. Varol. & Med. Oblong.	Heart.	Cause of Death, etc.
		lbs.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	oz. dr.	
1	7 days	7	14 1	12 13	1 0¼	0 3¾	0 13	Liver, 6oz. 8dr.; spleen, 6dr.; kidneys, 1oz.; medulla spinalis, 2½dr.
2	1 year	15	31 8	27 0	4 0	0 8	2 0	Phthisis. Liver, 12¼ oz.; spleen, 1oz.; kidneys, 2¾oz.
3	1¾	13½	31 0	27 0	3 8	0 8	1 8	Hydrocephalus.
4	3	22	39 10	34 8	4 8	0 10	1 12	Burn; 1 day.
5	3	22	34 10	30 8	3 11	0 7	1 10	Burn; 4 hours. Liver, 16½oz.
6	5	28	41 8	36 8	4 4	0 12	2 14	Cholera; 1 day.
7	6	..	51 0	45 8	4 12	0 12	2 12	Burn; 14 hours. Spleen, 1oz.8dr.; kidneys, 3oz.12d.
8	11	36	44 6	38 8	5 0	0 14	3 14	Cholera. Spleen, 2oz.; kidneys, 4oz.
9	13	46¾	37 8	32 8	4 4	0 12	6 2	Fever.
10	19	..	45 0	39 0	5 0	1 0	8 0	Cholera.
11	20	..	49 0	43 0	5 0	1 0	..	Fever.
12	19	..	46 12	41 0	5 0	0 12	7 12	Fever.
13	22	..	44 6	39 0	4 6	1 0	10 4	Fever.
14	30	..	46 0	40 0	5 0	1 0	10 0	Cholera.
15	36	104½	43 0	37 8	4 8	1 0	9 0	Delirium tremens.
16	76	..	44 6	38 6	5 0	1 0	10 12D	Strangulated hernia.

WEIGHT OF DISEASED BRAINS.

MALES.

11	38	56 4	50 0	5 4	1 0	4 0		Chorea; 6 weeks.
12	..	53 0	..	..	..	..		Convulsions.
33	..	54 0	..	..	..	11 0D		Apoplexy; 3 days.
62	..	39 12	35 0	4 4	0 8	16 0D		Soft. of brain, morbus renum

FEMALES.

24	..	42 8	37 0	5 8		..		Diseased brain and ear.
70	..	43 0	..	..	..	13 0D		Apoplexy.

The above observations are so few in number, that I have not thought it necessary to compile separate tables from them, more especially as it will be seen that they very closely correspond with the former much more numerous series. In the two following tables, however, I have presented the results obtained by calculating the whole of the data collected by Professor Reid, together with the present and former observations published by myself.

TABLE III. *Average Weight of the Brain at different periods of Life in Males.*

Ages.	Numbers weighed.	Average weight.
		oz. dr.
1 to 2 years	3	39 7
2 to 3 ..	4	44 1
3 to 5 ..	6	44 13·16
5 to 7 ..	4	45 4·25
7 to 10 ..	6	46 14·33
10 to 15 ..	13	47 15·2
15 to 20 ..	11	49 5
20 to 25 ..	21	50 13·9
25 to 50 ..	123	50 3·8
50 to 90 ..	53	48 9·4
	244	

TABLE IV. *Average Weight of the Brain at different periods of Life in Females.*

Ages.	Numbers weighed.	Average weight.
		oz. dr.
1 to 2 years	3	31 1·3
2 to 3 ..	9	37 5
3 to 5 ..	4	41 0·5
5 to 7 ..	5	41 4
7 to 10 ..	2	40 6
10 to 15 ..	3	40 10·6
15 to 20 ..	18	45 4·1
20 to 25 ..	15	46 1·8
25 to 50 ..	69	45 0·6
50 to 90 ..	23	43 0·3
	151	

The extreme range in the weight of the encephalon of the adult male is from 34 oz. to 62 oz. 12 dr., the number of brains weighed having been 197; and in the adult female the range is from 36 oz. 12 dr. to 54 oz., the number weighed having been 107.

1. The average weight of the encephalon of the adult, as calculated from the observations contained in Tables I and II, is, in males, 50oz.6dr.; and in females 44oz. 7½ dr. The previous observations[1] gave an average of 50 oz. 3 dr. for the weight of the encephalon of the adult male, and of 44 oz. 14 dr. for that of the female. A similarly close correspondence will be observed on comparing the respective average weights of the several portions of the brain, as deduced from the two series of observations.

2. The observations now published show, with little exception, an increase of Weight in the Brain up to the period of adult age, but they are too few to satisfactorily illustrate this point. The tables compiled by Professor Reid,[2] that drawn up by Dr. Boyd[3] from a very extended series of observations conducted at the St. Marylebone Infirmary, and the tables in my former communication, founded upon the united ob-

[1] Edinburgh Monthly Journal of Medical Science, vol. vii, pp. 101, 166. 1846.
[2] Edinburgh Monthly Journal, vol. iv. 1843.
[3] Wagner's Physiology, translated by Willis. 1844. Appendix, p. 700.

servations of Dr. Reid and myself, have so conclusively established the fact that the Brain does not attain its full development till from twenty to twenty-five years of age, that I should not have thought it necessary to insist upon it, had not Sir W. Hamilton[1] recently repeated, as fully established, the opinion which he formerly expressed,[2] that the Wenzels[3] were correct in stating that the brain attained maturity at or before the age of seven. To illustrate, therefore, the law of development of the brain, I have calculated the whole of the observations of Professor Reid and myself, and the results obtained are given in Tables III and IV.

From these tables it will be seen that the average Weight of the brain increases up to from twenty to twenty-five years age.[4] During middle life, or from twenty-five to fifty years of age, it retains about the same weight, and in after-life it declines considerably. It is true that some exceptions will be found to this rule among the separate observations, but though it occasionally happens that the brain of a young person may be found to equal or exceed in weight the average of adults of the same sex, such exceptions do not frequently occur, and can then only be ascribed to the organ having attained premature maturity, or, most generally, to the mode in which death has occurred. In cases where there is much obstruction to the circulation through the lungs during the last periods of life, the brain is found very much engorged, and though great care be taken to deprive it of the blood, it will still weigh heavier than if death had taken place under different circumstances. Thus it is that the brains of persons who have died shortly after the receipt of extensive burns, or in the collapsed stage of cholera, are found to be unusually heavy. Generally also persons who have died of acute diseases, have heavier brains than those who have long suffered from exhausting causes. To obtain, therefore, unexceptionable results, it would be necessary to calculate the average Weight of the Brain in persons who have died under precisely similar circumstances, and in observations so framed I am satisfied that the exceptions to the general rule would be very rare.

Sir W. Hamilton[5] states that he has "established, apart from the proof by averages, that the human encephalos does not increase after the age of seven at the highest. This has been done by measuring the head of the same young person from infancy to adolescence and maturity: for the slight increase in the size of the head after seven (or six) is exhausted by the development to be allowed to the bones, muscles, integuments and hair." It is, however, evident that this method of investigation can show only the period at which the brain attains its greatest bulk, and not that at which its development is completed; for every practical anatomist is familiar with the fact, that the density of the brain varies greatly at different periods of life. Calculations of the average Weight of the Brain afford the only means by which we can ascertain the period at which its full development is attained, and the changes which it undergoes during the progress of life.

[1] Edinburgh New Philosophical Journal, Jan. to April 1850, p. 330.

[2] Monro's Anatomy of the Brain. 1831.

[3] De penitiori structura cerebri Hominis et Brutorum, p. 267, fol. Tubing. 1812.

[4] It is probable, indeed, that there may be a slight increase beyond this period. In Dr. Boyd's table the weight, both in males and females, is greater at from 30 to 40 years, than at any other period of life.

[5] Edinburgh New Phil. Journ. January to April 1850.

ON SOME VARIETIES OF RENAL DISEASE, WITH ESPECIAL REFERENCE TO DIAGNOSIS AND PROGNOSIS.

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None but those who have paid much attention to the Diseases of the Kidneys, and to the means of distinguishing one form of disease from another, can form an estimate of the true value of the information to be derived from a chemical and microscopical examination of the urine. It may safely be affirmed, that a microscopical examination of the urine is, in general, as necessary for the formation of a correct opinion in cases of renal disease, as a physical examination of the chest is for the exact diagnosis of diseases within that cavity. To determine the true nature of a disease in the kidney, and to form a probably correct judgment as to its course and termination, it is not sufficient merely to ascertain that albumen is present in the urine, that the specific gravity of the secretion is abnormal, and that moulds of the uriniferous tubes may be detected by the microscope. These signs may each and all be present in a given case; but a more precise examination of the circumstances is necessary for the formation of a correct diagnosis. The mere enumeration of these signs, such as is very commonly given in reporting cases of renal disease, will as little enable a practitioner to ascertain the true nature of disease in the kidney, as would a simple report of a patient having cough, with dyspnœa, expectoration, and a sound produced by the mixture of air and liquid in the air-tubes, suffice for the exact diagnosis of disease in the lung. In both instances, the signs must be exactly observed, and correctly reported; otherwise no sound opinion can be based upon them.

I have selected the following cases for publication, with a view to point out to my professional brethren some of the circumstances which require particular attention in the examination of cases of renal disease. It is well known that diseases of the kidney are amongst the most frequent of those which destroy life, and that some forms of renal disease are curable, while others are almost certainly fatal. In many of the most obvious circumstances, all the forms of renal disease are alike; and it is only by a careful attention to differences, which, however minute, may yet be readily and certainly appreciated, that we can hope to distinguish one disease from another, or to give a confident opinion as to the probable course and termination of a case.

The microscopical examination of the urine is much facilitated, by placing it in a conical glass, which will contain about three or four ounces. The fluid should be allowed to stand for a few hours before examination. I usually put it in the glasses at night, and examine it with the microscope on the following morning. This delay is not necessary if the sediment is abundant; but in many cases, when the sediment is small in quantity, it is quite essential that time should be allowed for its deposition to take place. A small quantity of the lower part of the liquid should then be removed with a pipette, and placed in a shallow cell for microscopical examination.

Case I. Acute Desquamative Nephritis—Urine very scanty, and highly Albuminous, with Epithelial Casts—Epileptic Convulsions and Coma—Recovery. I was called to see Ann Fers, æt. 54, as a dispensary patient, on the 6th Dec. 1849. I found her in a state of semi-stupor, and learned that she had been seized with a convulsive fit in the night. She had a wild, distracted look. The tongue was brown and dry. I subsequently learnt that, during the preceding six or seven months, she had lived very badly, in consequence of her husband being out of work. She had gradually become weak; and had restless nights, with frightful dreams, and spectral illusions. About a fortnight before I saw her, she had become much worse, with vomiting, intense head-ache, slight general dropsical swelling, pain in the back, and very scanty secretion of urine. She was ordered to have six leeches applied to the temples, and to take three grains of calomel every four hours.

In the course of the evening some urine was obtained. It had an abundant precipitate of lithic acid, and contained numerous *casts of tubes, with entire cells of renal epithelium;*[1] when boiled it became almost solid with albumen.

December 7th. In the morning of this day she was much the same. There had been no return of the convulsions; she had the same wild, and half-conscious expression of countenance; there was frequent vomiting. Eight ounces of blood were ordered to be taken, by cupping, from the lumbar region: two pills of colocynth and calomel to be taken immediately, and an effervescing draught every four hours.

December 8th. She was better; and said she was much relieved by the cupping; complete consciousness having returned soon after the operation. She had some sleep in the night; but was disturbed by horrid spectral dreams. Bowels freely opened; urine more abundant, and clearer; still some vomiting; tongue less dry, and cleaner. To take a mixture of sulphate and carbonate of magnesia three times a day.

From this time she steadily and progressively improved. The urine became more abundant; and all cerebral symptoms disappeared.

January 3, 1850. She began to take sulphate of iron with quinine three times a day. At this time the urine had a specific gravity of 1010; it was pale, abundant, contained a very few casts, entangling disintegrated granular particles of epithelium, the casts being of *small size:* albumen was still abundant.

February 4th. The urine had much the same characters. She was still pallid and feeble. The steel and quinine were continued.

March 7th. The quinine was omitted, and the dose of sulphate of iron was increased to two grains, with infusion of quassia, three times a day.

During the month of March she became much stronger, and in every way better. She gained flesh; and her face lost its pallor, and assumed a healthy hue. Towards the end of the month the urine was free from all trace of albumen, and contained no casts, nor renal epithelium. She remained under observation some weeks after this: her health continued good, and her recovery was complete.

Remarks. I reserve my remarks on the diagnosis and prognosis in this case, until I have referred to some other cases, with which it

[1] It is proposed to call casts of this kind "epithelial casts."

may be compared and contrasted. With reference to treatment, I have found, in other cases of acute desquamative inflammation of the kidney, that cupping in the lumbar region has afforded the same immediate relief to the cerebral symptoms, which was so striking in this case. There is no remedy in which, under the same alarming circumstances, I have an equal degree of confidence; and I feel assured that the abstraction of a small quantity of blood by cupping, from the region of the kidneys, is much more efficacious in removing cerebral symptoms, than any treatment directly applied to the head. In all cases of acute renal disease, whether occurring as a consequence of scarlatina, or from any other cause, when the urine is very scanty, and the patient complains of severe head-ache and drowsiness, there is much reason to fear that these symptoms may be followed by convulsions and coma; and unless the earlier symptoms are checked by a rigidly low diet, free purging, and the use of diaphoretics, no time should be lost in applying cupping glasses with the scarification over the kidneys. The congestion of the renal blood vessels is by this means lessened, the secretion is quickly increased, and the blood being thus purified, the cerebral symptoms are directly relieved. It must always be borne in mind, that an imperfect elimination of the urine will impoverish the blood more than the abstraction of a moderate quantity from the vessels, and that an attack of convulsions, if it do not end in fatal coma, may produce greater injury in the brain than all the powers of nature or of art can repair.

Case II. Occasional attacks of Gout—Chronic Bronchitis—Urine Albuminous, and containing Granular Casts—Death preceded by Convulsions—Chronic Desquamative Nephritis. Benjamin Hobday, æt. 47, a waiter, with sandy hair and pallid skin, was attended by me as a dispensary patient in Jan. 1847. Was in the habit of drinking freely, and had several times had gout. About three months before I first saw him, his wife had observed that his abdomen became tumid, and his face rather puffy; this soon subsided, and there was no subsequent appearance of dropsy.

This present illness began, six weeks before I saw him, with cough and mucous expectoration. There was large crepitation over both sides of the chest. He was losing flesh; he always appeared dull and heavy; and his tongue was dry and brown. He took an antimonial mixture without relief. The urine was scanty and high coloured; it contained a small quantity of albumen, and numerous *dark brown casts, apparently composed of disintegrated epithelium.*[2] No blood corpuscles were observed. The specific gravity of the urine was not noted.

January 25th. He had several attacks of convulsion, in the intervals of which he lay muttering and insensible. On the following day he died.

Post-mortem Examination. The brain and its membranes appeared quite healthy. The lungs contained scattered crude tubercles, and were much engorged and carnified. The only organs decidedly diseased were the kidneys; and they presented the characteristic ap-

[1] The term "granular casts" sufficiently expresses the character of these bodies.

pearances of chronic desquamative nephritis. The cortical substance was wasted, and its surface irregular and granular. Some tubes contained an excess of cells, differing little in appearance from the normal epithelium; while the greater number of the tubes contained the same granular material, which, when washed out, had evidently formed the casts which were observed in the urine during the life of the patient. Other tubes, again, were pale and transparent, being composed only of basement membrane; the epithelial cells, which probably had first become disintegrated, having been washed away by the current of liquid passing through the tubes.

Remarks. The preceding case is an example of the form of renal disease, which is very commonly observed in gouty subjects. The blood is contaminated by certain morbid matters, as a consequence of the gouty diathesis; the kidneys make an effort to eliminate these materials; and, in doing so, their secreting cells undergo a modification. They become opaque and granular, then completely disintegrated, and subsequently are washed away, leaving the tubes denuded. After the destruction of the secreting cells, the tubes waste, in consequence of the removal of the vital attractive influence of the cells upon the blood.[1] The cortical substance thus becomes irregularly contracted and granular.

There is one point of view in which it will be instructive to compare the case of Hobday with that of Fers. It might have happened to me to have seen Hobday for the first time, as I did Fers, soon after the first attack of convulsions. The question arises,—were there any distinctive signs in the two cases, which would have suggested, in the one case, a much more hopeful prognosis than in the other? This is clearly a question of great practical importance, and one, too, which happily admits of a decisive and satisfactory answer. In the case of Fers, the urine contained what I have called "epithelial casts", that is, fibrinous matter entangling *entire epithelial cells;* and these, with albumen, and very commonly blood, in the urine, indicate a recent acute disease in the kidney. In such a case, there is much reason to expect recovery, if we can succeed in warding off the urgent symptoms induced by the poisoned condition of the blood, consequent on the impaired excretory function of the kidney. In the case of Hobday, the appearances were very different. The casts in the urine were composed of *granular particles of disintegrated epithelium.* My observation has taught me to associate this form of cast with a chronic disease in the kidney. Where these casts have been observed in the urine during life, the kidneys will be found after death more or less wasted, sometimes extremely so, and the tubes will be in the condition described in the case of Hobday, some being entirely denuded, and others filled either with disintegrated epithelium, or with cells differing more or less from the normal epithelium. This chronic form of disease may have advanced to the extreme stage of atrophy before the occurrence of any urgent symptoms. Amongst the most common and most serious of its ultimate consequences, is an attack of convulsions,

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[1] On this subject see the author's paper "On the Proximate Cause of Albuminous Urine and Dropsy", in volume xxxiii of the *Medico-Chirurgical Transactions;* also on the "Inflammatory Diseases of the Kidney", in volume xxx.

recurring more or less frequently. Now if, in a case in which convulsions have once occurred, we find the urine albuminous and containing the "granular casts" described above, we must be prepared for a recurrence of the attacks, and for the probability of a speedily fatal termination.

I must beg my readers to bear in mind, that the preceding remarks relate to cases in which convulsions or coma, or other serious mischief, have resulted from deficient renal excretion, such symptoms affording evidence of extensive disease in the kidney, which, if it have gradually advanced to that degree by a process of chronic inflammation, is but very little under the influence of treatment. The "granular casts", *per se*, indicate merely the *form* of disease, and not the stage of its progress, or the degree of mischief which it has produced. Still the existence of these casts is a very important sign, being present from the very commencement of the chronic desquamative process. They may often be detected before the disease is so far advanced as to render the urine albuminous; and at this early stage of the disease we have most reason to expect that our remedies will be successful. Further, the proportion of this granular material in a given quantity of urine, affords an index of the rate at which the disease is progressing. The granular casts are composed of disintegrated epithelial cells, which, being thus shed, appear in most instances not to be reproduced; the greater, therefore, the quantity of this material discharged with the urine, the more rapid must be the destruction of the secreting tissue of the kidney, and the more speedy will be the occurrence of urgent symptoms from suppressed secretion. In the extreme stages of chronic desquamative disease, the granular casts sometimes disappear more or less completely, and are replaced by casts of a very different kind, as will be seen in the history of the succeeding case.

It may be well to remark in this place, that there are at least two circumstances, under which the occurrence of granular casts does not indicate the chronic disease above alluded to. A moderate amount of care will, however, in either case prevent an error of diagnosis. *First*, after an attack of acute desquamative nephritis, it commonly happens, that for some days, while the urine is returning to its normal condition, casts composed of disintegrated epithelium and blood are discharged with the secretion; these gradually diminish in number, and soon entirely disappear. *Secondly*, after an attack of renal hæmorrhage, some blood, which has remained in the tubes, becomes disintegrated and washed out in the form of granular casts, which, however, have generally a yellowish-brown blood-colour, and this would suffice to distinguish them from the epithelial granular casts. In addition to this, the occurrence of hæmaturia would be almost conclusive evidence of the non-existence of chronic desquamative nephritis, the extremely thickened condition of the blood-vessels in that disease rendering the occurrence of renal hæmorrhage, at least in the advanced stages, a very rare accident.[1]

In one case of scurvy, I observed yellowish-brown granular casts, which I at first supposed to be indicative of chronic desquamative

[1] Upon this point, see the author's paper, before alluded to, in *Med.-Chir. Trans.* vol. xxxiii.

disease, but which I subsequently found to be composed of disintegrated blood-corpuscles and fibrine. The man quickly recovered under the care of Dr. Todd, in King's College Hospital, and, in a few days, the casts entirely disappeared.

Case III. Acute desquamative Nephritis passing into chronic desquamative disease, with granular Casts in the Urine, and subsequently a waxy Deposit in the Kidney, with "Waxy Casts" in the Urine—scanty Secretion—Pericarditis—Pleurisy—Death. John Revels, aged 30, a labourer, of temperate habits, but much exposed to wet and cold in his work. About seventeen years ago, he was ill for a month with dropsy, but recovered completely. His present illness began about seven or eight months ago, after getting wet through while at work, and standing for some hours in his wet clothes. After this, he felt "chilly, and shivering and miserable"; the breathing soon became oppressed; and he began to suffer from head-ache, which had continued until the present time; he had gradually grown pale and weak, and had lost flesh; there had occasionally been slight swelling of the face and hands. He had suffered much from dyspepsia, and once had bleeding from the nose to a considerable extent, since which he had discontinued his work, on account of weakness. He reported of the urine, that at the commencement of his illness, it was very high-coloured—"like porter"; and that it was at the same time scanty; but that it soon recovered its natural appearance, and became more abundant than natural. He had sometimes got up four or five times during the night to pass water, and had passed as much as three quarts in twenty-four hours.

This sequence of phenomena is very commonly observed in cases of acute desquamative nephritis; the urine being at first scanty, and darkly tinged with blood, and shortly afterwards becoming paler and much more abundant than in health. I have suggested an explanation of this abundant secretion of urine in a paper "On the Inflammatory Diseases of the Kidney", published in volume xxx of the *Medico-Chirurgical Transactions.*

The preceding narrative brings the history of the patient to the 17th Nov. 1847, when he first came under my observation. It was then noted, that he was of middle height, muscular, but the muscles flabby; hair light; face and lips very pallid. He complained chiefly of weakness, and slight headache; his breath was short, on making any exertion; the sounds of the heart were normal. Pulse 88; skin cool; tongue clean; no thirst; appetite good; but he was much distressed by flatulence for about two hours after eating. This is one of the most common and distressing symptoms in cases of chronic renal disease. He passed about four pints of urine in twenty-four hours, of specific gravity 1012. It deposited a rather abundant dense whitish precipitate, composed of dark granular casts (probably disintegrated epithelium), with some scattered renal epithelium; there was no blood nor crystals; albumen was present in small quantity. The nature and the amount of the sediment at this time indicated rapidly progressing chronic desquamative disease. (See p. 113.)

November 20th. I admitted him into King's College Hospital, under

the care of Dr. Todd. On the 24th and 26th the urine was again examined, with the same result as before.

December 11th. The urine had the same characters as before. During the last twenty-four hours he had passed four pints (16oz.), and 4 oz. He was getting worse; his face was pale, and puffed; the countenance was heavy; he complained of weakness and drowsiness, and occasionally vomited after his meals.

December 16th. I now first observed what I propose to call the "waxy casts"[1] in the urine, mixed with the dark granular casts before mentioned. The waxy casts were of a yellowish white colour, very much resembling wax; they had a well-defined outline, and a diameter of about 1-400th, or 1-500th of an inch; they did not entangle epithelial cells; but some contained, here and there, a few small nuclei, about the size of blood corpuscles.

December 20th. The waxy casts were more numerous in proportion to the granular casts. The urine had a specific gravity of 1012; albumen was moderately abundant.

December 27th. The legs were swollen, and pitted on pressure.

January 1st, 1848. He had shortness of breath, and uneasiness about the heart. Pulse 96.

January 4th. The countenance was anxious; a loud double friction sound was heard over the heart. Pulse 120. Respirations 32. He passed less urine, perspired freely, and vomited frequently.

January 5th. Feeling that he was beyond hope of recovery, he insisted on being removed to his own house, where he gradually sank. The urine became very scanty. A catheter was once passed, under the idea that the secretion was retained in the bladder; but scarcely any was found there. At length he became delirious; and died on the 11th January.

Post-mortem Examination two days after Death. The body was well-formed, and muscular, very little emaciated; the skin was very pallid. The pericardium contained a moderate quantity of serum. The surface of the heart was roughened with recent lymph; the heart was larger than usual; the left ventricle was dilated, and its walls were very thick; the valves were all healthy. There was some lymph on the right pleura, in contact with the pericardium. The lungs were congested, but in other respects healthy.

Kidneys. The cortical substance was thinned, and contained a yellowish-white, firm, waxy material, which, on the surface, formed projecting granules, varying in size from a pin's head to a large pea. In parts, where this material was most abundant, the tissue was anæmic; where it was less abundant, the vessels were congested. On the surface of one kidney there was a cyst, of the size of a large pea. Some of the tubes were crowded with epithelium, some contained granular particles of disintegrated epithelium, others were denuded; and others, again, contained the same wax-like material which had formed the casts already described as existing in the urine. At the same time, I noted an appearance of fibrous tissue, which I then supposed to be the result of conversion of the basement membrane of the tubes into

[1] The term *waxy* is applicable only to the appearance, and not to the chemical composition of the material, which is probably of a fibrinous or albuminous nature.

fibrous tissue, but which I have since ascertained to be hypertrophied arterial walls. With reference to this point, I must again refer to my paper in the thirty-third volume of the *Medico-Chirurgical Transactions*.

Remarks. This case was evidently, at the commencement, one of acute desquamative nephritis. If at this time the patient had been subjected to proper treatment, which would have implied a temporary discontinuance of his work, and a strict avoidance of exposure to wet and cold, there is reason to believe that he would soon have been restored to health. The poor man, however, did not apply for assistance until the disease had become chronic, and had advanced beyond the stage at which treatment could be of any avail. The most interesting point in this case, is the observation of the first appearance of the "waxy" casts in the urine, their mixture with the granular casts, and subsequently the increased number of the former in proportion to the latter; their appearance in the urine being, doubtless, simultaneous with the deposit of the wax-like material in the kidney, and this material being probably secreted by those tubes which had previously lost their epithelial lining.

The following case, in some points, resembles that of Revels; but in other respects it differs materially. It possesses a peculiar interest.

Case iv. Numerous attacks of Gout—Chronic Desquamative Nephritis—Urine Albuminous—a very few Waxy Casts — almost Complete Suppression — Urinary Tubes Denuded — Renal Arteries and Malpighian Capillaries thickened. Thomas Hewson, æt. 49, a coachman, had always drunk freely of porter,—on an average half a gallon daily. At the age of twenty-five he had inflammation of the chest; and during this attack he was first seized with gout in one great toe. About three or four years after this, he had a second attack; since which the attacks had returned with increased frequency, and had, at different times, affected almost every joint. For several years before his death, he was disabled by gout for about nine months in each year; his diet had consequently been very poor. This is one amongst a great number of instances, with which I have met, in which a labouring man has brought upon himself and his family long-continued severe suffering and privation, by an intemperate use of London porter. I attended him frequently as a dispensary patient, for attacks of gout, before I had any suspicion of renal disease.

June 7th, 1849. I examined the urine. It had a specific gravity of 1015; it was pale, and deposited a very slight cloud, containing a few well-defined "large waxy casts", similar to those observed in the preceding case, but very much less numerous. Scarcely a particle of renal epithelium could be seen. The urine contained a large quantity of albumen, becoming almost solid when boiled. The patient was of rather small stature; his hair and whiskers were sandy; his face pallid; he was considerably emaciated. During the last two years, the legs had occasionally become œdematous after sitting up; and the face had sometimes been slightly swollen, but there was now no appearance of dropsy. A short time since he had an attack of gout; but he now complained chiefly of weakness, which confined him to bed.

The joints were free from deposits and distortions, except a slight contraction of the fingers of one hand. His wife observed that, during the earlier attacks of gout, the urine was generally high-coloured and turbid, but that latterly it had remained pale and free from deposit. He was ordered to take small doses of tincture of sesquichloride of iron.

June 18th and 27th. The urine was examined, with the same results as before.

July 3rd. During the last fortnight, he had become deaf. He was much changed in appearance; he sometimes appeared confused in his intellect; the limbs frequently moved in a chorea-like manner. He was very pale and thin, and complained of an acrid taste in the mouth. His breath was fœtid; he had occasional bleeding at the nose; there was frequent vomiting. The urine was scanty; the quantity obtained was insufficient for ascertaining its specific gravity; it was highly albuminous, and threw down a rather copious dense precipitate, of a whitish brown colour, composed of numerous *waxy casts, varying in diameter from* 1-375 *to* 1-750 *of an inch.* There was no epithelium, either entire or disintegrated. He was ordered to have an effervescing draught every four hours.

July 7th. He was worse; had frequent vomiting, and severe headache. He had passed only about two ounces of urine during the last twenty-four hours. It was light coloured, very albuminous, and had a very slight sediment, containing traces of the same casts as before. The effervescing draughts were repeated; and a quarter of a grain of elaterium was prescribed, to be taken immediately.

July 10th. He was much the same. The urine amounted to about four or six ounces in twenty-four hours. Yesterday its specific gravity was 1016; this day it was 1019; it was pale, highly albuminous, and had a very scanty sediment, with traces of the same casts as before.

July 14th. He was much the same, but more exhausted, and very pallid; the skin was cool. He became suddenly faint; and died soon after my visit, retaining his consciousness and power of speech until within a few minutes of his death.

Post-mortem Examination on the fourth day after Death. The weather being warm, and putrefaction having commenced, the kidneys were removed by an opening in the abdomen; no other parts were examined. Both kidneys had much the same appearance. Their size was rather less than normal; one weighed 3½oz. The surface was smooth. In the cortical substance of one, there was a cyst about the size of a horse-bean. They were slate-coloured, from incipient decomposition. The chief structural change visible to the naked eye, consisted in the absence of the usual lobular appearance on the surface. The cortical substance was rather thin; but an unpractised observer might have pronounced the kidneys healthy. On a microscopic examination, the Malpighian bodies appeared very conspicuous, while the tubular structure was confused and indistinct. After the addition of acetic acid, the tubes became much more distinct; many were denuded and atrophied. Scarcely one could be seen with the normal epithelial lining; some contained oil; others, brown granular particles of disintegrated epithelium; and a very few contained the white waxy material, which had formed the casts observed in the urine during

life. In consequence of the atrophy of the tubes, the Malpighian bodies seemed relatively more numerous, and closer together than ordinary; they were not perceptibly enlarged; one of the largest measuring 1-75th of an inch. The Malpighian tufts were of a dull white colour; the surface of the vessels was smooth, their coats thickened, their canals clearly visible in many instances, especially after adding acetic acid, which also brought into view the blood-corpuscles in their interior. The coats of the arteries were hypertrophied; and the canal of one contained some small masses of oil.

Remarks. There can be little doubt that the morbid process, in the case of Hewson, was essentially the same as in that of Revels; and that the urine, if examined at an earlier period of the disease, would have presented the granular casts, which an examination of a great number of cases of this disease has shown to be quite characteristic. In this case, the desquamative process had continued until nearly all the tubes had lost their epithelial cells; and, then, as a necessary consequence, secretion was almost completely arrested. There was one remarkable difference between the two cases; the wax-like material, which was deposited so abundantly in the kidneys of Revels, was, in the case of Hewson, only just sufficient to afford the data for a correct diagnosis and prognosis.

Immediately after the case of Hewson, another essentially like it occurred to me in a woman named Brooks. The urine had the same characters, and contained the peculiar large waxy casts. The kidneys presented the same general and microscopical appearances.

When the urine is pale, and of rather low specific gravity, containing a large quantity of albumen, with a scanty sediment, composed of the peculiar large waxy casts, as before described, with little or no epithelium, either entire or disintegrated, it may be almost certainly inferred that the chronic desquamative process has destroyed the secreting cells of the kidney; and that if urgent symptoms of suppressed secretion are not already present, they will very speedily appear.

I have several times spoken of the waxy casts as being "large", and I have given the diameter of those observed in the urine of Hewson. My reason for doing so has been, that as the diameter of these casts was equal to the average diameter of healthy kidney tubes, *their size was sufficient evidence that the tubes, in which they had been moulded, had no epithelial lining, and were composed only of basement membrane,* as the post-mortem examination of the kidneys proved to be the case.

I will now give the particulars of a case in which what I propose to call "*small* waxy casts" were observed, and which formed the ground of a favourable prognosis, which the result proved to have been correct.

Case v. Intemperate Habits with an insufficiency of nutritive Food—general Dropsy—ecthymatous Eruption over the Body—Urine highly albuminous, and containing "small waxy" Casts—Recovery. George Henry Lewis, aged 45, of intemperate habits, much reduced in circumstances, and latterly living very badly, was admitted into King's College Hospital, under the care

of Dr. Budd, on the 6th June 1849. He was suffering from general anasarca and ascites in a very great degree, and his body was covered with an ecthymatous eruption. He was very pallid; his breathing was difficult, and accompanied by a wheezing sound. The dropsy had appeared two weeks before, and the eruption a month earlier. The sounds of the heart were normal. The urine was scanty, rather light-coloured, somewhat cloudy, of specific gravity 1012, becoming almost solid with albumen when boiled. After standing, it deposited a pretty abundant whitish dense precipitate, chiefly composed of *transparent waxy casts, about one-thousandth of an inch in diameter.* Very few epithelial cells were seen, and no blood-corpuscles, or very few.

Few, probably, who saw the miserable condition of this poor man at the time of his admission, would have given a favourable prognosis; but after a microscopical examination of the urine, I ventured to suggest to my friend Dr. Budd the probability of his patient's recovery, for the following reasons. The appearance of the casts seemed to indicate merely congestion of the Malpighian capillaries, and an absence of disease in the epithelial cells. The diameter of the casts proved that they were moulded in canals lined by epithelial cells; in this respect forming an instructive contrast with the casts in Hewson's case (p. 117). The almost entire absence of epithelial cells from the urine showed that the secreting structures were but little involved; since any morbid matter in the blood, injuriously affecting the secreting cells, would have produced a desquamation of these structures. The inference was, that the blood was in such a morbid state as produced congestion of the Malpighian capillaries, while it affected but slightly, if at all, the secreting cells of the kidney. As a consequence of the congestion, coagulable matter with serum escaped from the Malpighian vessels, and, after being moulded in the tubes, was washed out with the urine, forming the "small waxy casts" already described.

He was first put on milk diet, and was ordered to have a tepid bath every morning, and to take small doses of solution of citrate of ammonia, with fifteen minims of ipecacuanha wine, every six hours. He began to improve almost immediately. It may be well to mention here, that for several years he had been subject to epileptic fits, which returned with increased frequency while he was suffering from the dropsy.

The urine was frequently examined, and its condition carefully noted. The albumen continued very abundant for about six weeks. The quantity passed in twenty-four hours did not exceed one pint when he was first admitted, but soon became more abundant, and for some days exceeded the normal quantity. Thus, on the 18th June, it measured five pints. In this increased flow of urine, following upon a scanty secretion, the case resembled one of acute desquamative nephritis (see p. 114).

June 25th. It was now first noted, that some of the casts entangled a few oil-globules, and here and there appeared a cell containing oil. These appearances continued for about three weeks, and occasioned some anxiety lest the kidneys should undergo fatty degeneration; the more so, as the albumen was still very abundant.

About the middle of July, the oil was evidently diminishing, and the casts were less numerous; but the albumen was as copious as at the commencement. The specific gravity of the urine was 1014.

July 26th and 27th. The albumen was reported to be much less, so that there was scarcely more than opalescence when the urine was boiled. The urine was clear; there was no cloud or sediment after standing, nor anything visible by the microscope. In the meantime, the eruption and the dropsy had entirely disappeared, his appetite and strength had returned, and the pallor of his face had been replaced by a healthy hue. Since the 26th June he had been taking steel, sometimes in the form of citrate, and occasionally in that of tincture of the sesqui-chloride.

July 30th. He was progressing favourably; had improved in all respects. The bowels were regular; the tongue clean; he slept well. The urine was scarcely albuminous.

August 1st. He left the hospital without leave, and has not since been heard of.

Remarks. It is instructive to compare the history of this case with those of Revels and Hewson. In appearance, the condition of Lewis, when he first came under observation, was much more desperate than that of the other two. The microscope was the only means of determining that the probability of recovery in each case was precisely the reverse of that which, to a superficial observer, it might appear to be.

I will conclude this communication with a few remarks on the Diagnosis of Fatty Degeneration of the Kidney; one of the most intractable, and unhappily one of the most frequent of the forms of renal disease.

The urine, in cases of fatty degeneration of the kidney, has characters sufficiently distinctive to render the diagnosis a matter of ease and certainty. It is commonly of a rather pale, yellowish colour. When first passed, it is clear; but, after standing for some hours, it usually deposits a light, cloudy sediment; sometimes, in the early stages, the urine has a dark smoky colour, from containing blood. The quantity secreted is less than normal, and its density in most cases exceeds the healthy standard; it is by no means unusual to find the specific gravity ranging from 1025 to 1030. The albumen is generally very abundant, so that, when boiled, the urine becomes almost solid. On a microscopic examination of the cloudy sediment before mentioned, there may be seen transparent casts of rather small size, in many of which are entangled oil-globules of various sizes, also cells containing oil-globules in greater or less abundance. There are besides scattered cells, more or less completely filled with oil. I might transcribe from the pages of my note-book many cases, in which the urine has presented more or less of the characters here described, and in which not one of the patients has recovered. The majority of these cases have terminated fatally; while, in a few instances, the symptoms continue in a greater or less degree; the urine continuing highly albuminous, and presenting unequivocal microscopical evidence of the true nature of the disease. For the purposes of prognosis, it is as important to distinguish between a case in which the urine presents the characters here described, and a case of simple desquamative nephritis, as it is to distinguish tubercular disease of the lung from acute pneumonia or bronchitis.

Now, since the prognosis in a case of confirmed fatty disease of the kidney is thus unfavourable, it is important that all who examine the

matter should clearly understand that albuminous urine may contain a certain amount of oil, entangled in fibrinous casts, or enclosed in epithelial cells; and yet the disease may be of a simple nature, and may speedily terminate in recovery. It is very common to find small quantities of oil in the casts and in the cells, after a simple inflammation of the kidney has existed for three or four weeks. Now, since an inflammatory disease does in some instances become chronic, and terminate in confirmed fatty degeneration, the appearance of any oil in the urine must occasion a certain degree of anxiety, lest it should increase in quantity, and take the place of the simple inflammatory products. In the case of Jervis, it will be remembered that oil was seen in the casts and in cells, that it continued for several days, and then entirely disappeared simultaneously with a rapid decrease in the quantity of albumen. The following brief notice of a case will serve as an example of what may frequently be observed.

Case vi. Acute desquamative Nephritis, with general Dropsy; Urine scanty, highly albuminous and containing fibrinous Casts, Epithelium and Blood—subsequently oil in the Casts and Cells—Complete Recovery. John St. Ledger, aged 49, a billiard-marker, applied to me at the Dispensary on the 12th April 1847, and gave the following account of himself. During the period of Lent, he had fasted very rigidly, *i. e.* during four days in the week he took only one meal a day, composed of fish, with milk and potatoes; during the remaining three days he took animal food as usual, perhaps rather in excess. Under this plan of diet he found himself getting thin and weak, and he became very dyspeptic and flatulent after his meals. On Easter Monday, April 5th, he felt drowsy, and had muscular pains. The next day, dropsical swelling appeared, and the urine was very scanty. He continued to get worse until the 12th April, when he first came under my notice.

There was then slight general dropsy, head-ache, and drowsiness; the urine was scanty, high-coloured, and very albuminous. It presented the characteristic appearances of simple acute desquamative nephritis; containing fibrinous casts, entire epithelial cells, and blood corpuscles. During the first few days he was much benefited by cupping, warm baths, purging, and diaphoretics.

A careful microscopical examination of the urine was made almost daily. Its characters remained the same until the 29th April, when, for the first time, it was seen that many of the epithelial cells contained oil-globules. At that time, I knew much less of the history of this disease than I now do; and I quite despaired of my patient's recovery. Day after day the oil was visible, some cells being completely filled with it; but, at the same time, *by far the greater number of cells were entirely free from oil*, and this is the circumstances which, with my present knowledge of these cases, would have suggested to me a favourable prognosis. Early in the month of May the dropsy disappeared, but the patient continued very weak and pallid.

May 6th. He began to take a draught three times daily, consisting of diluted nitric and diluted hydrochloric acids, ten minims of each, in infusion of quassia.

May 31st. The above medicine was discontinued, and he took an

ounce of compound mixture of iron three times daily. Soon after the change of medicine, he began to gain strength, and to improve, in every way, very rapidly.

June 14th. The quantity of urine was three pints in twenty-four hours; of specific gravity, 1017; the colour was natural, the albumen much diminished. It contained a few casts, with epithelium more or less disintegrated, and scarcely a trace of oil.

At the beginning of July, the urine was free from albumen, and presented no trace of oil, but a very few casts with disintegrated epithelium; he was gaining strength, and was much improved in appearance. Once after this, there was a temporary return of albumen, but it soon disappeared, and he completely regained his health and strength. He has occasionally since been under my care for trifling ailments; I have several times examined the urine, and have found it, in every respect, quite healthy.

3, Woburn-square, Dec. 31, 1850.

ON THE INHALATION OF VARIOUS MEDICINAL SUBSTANCES.

By JOHN SNOW, M.D.

THE following are the chief reasons why it may be desirable to give medicines, in some instances, by Inhalation, in preference to the more ordinary method by deglutition.

1. As the influence of the medicine appears immediately, and a greater surface is offered for absorption, a larger dose may be given, and a more sudden and profound effect produced on the economy than it would be safe, or, in some cases, even possible to produce in any other manner. An instance in point is the insensibility induced by chloroform and ether.

2. The process of digestion is less interfered with, than by taking medicines into the stomach.

3. Many medicines which have a disagreeable taste—as turpentine, creasote, and camphor—are not unpleasant when inhaled in the form of vapour.

4. Agents, such as benzoic acid, and some of the gum-resins, which are believed to exert a local action on the mucous membrane of the air-passages, may be expected to have a greater effect when inhaled, than when they are taken into the stomach in the same doses, and reach the lungs only through the circulation.

5. Some agents, as chlorine and ammonia, have a local action when inhaled, which they could not exert if exhibited in any other way.

It was almost solely with a view to their local action that medicines were inhaled, prior to the discovery at Boston, in America, of etherization, which established a new era in inhalation; and even at the present time, with the exception of ether and chloroform, hardly any medicines are exhibited by inhalation, unless in affections of the lungs; although there evidently ought to be no such limitation of the practice.

It must be acknowledged in the outset, however, that it is a much less simple and easy matter to have medicines properly inhaled, than to direct them to be swallowed; and it is the object of the present communication rather to attempt the removal of difficulties, and to point out the physical conditions under which certain medicines can be inhaled, than to detail the results which have been obtained by inhalation.

Owing to neglect of the physical properties of a medicine, it has sometimes been supposed to be inhaled, when in fact it was not, unless in a quantity almost infinitesimal. It has not been unusual, for instance, to direct a drachm or two of tincture of hyoscyamus or conium to be put into half a pint or a pint of hot water, in order to be used for inhalation. Now the virtues of an infusion of these plants remain in the extract, after the water is all evaporated at a moderate temperature; and if the patient had inhaled day after day from the same water (having it made hot for the purpose), till it had all been consumed, the medicine would have been found at the bottom of the vessel in the form of an extract, to which water might have been added for the process to be commenced afresh. It is obvious, therefore, that any effects which have been produced by inhaling in this manner, were due either to the vapour of the water, which is very beneficial in irritable states of the mucous membrane, or to physical causes depending on the construction of the inhaler, and the mode in which it was used.

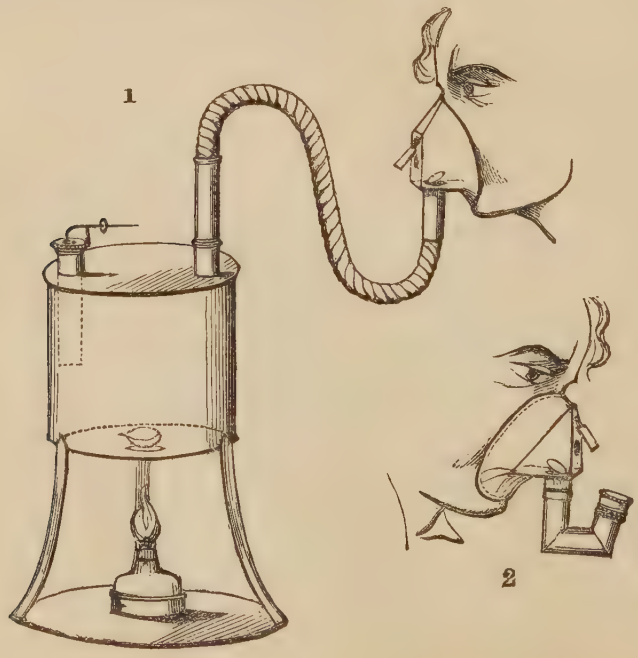
The most important of the additions to the mechanical means for inhalation, which followed the discovery of etherization, is the flexible face-piece, to include both the nostrils and mouth. Dr. Gibson introduced this, although Dr. Hawksley contrived a similar one about the same time. It is shewn in the engraving, which accompanies this paper, in the modified form in which I use it. The sides and margin, which form the flexible part, consist of thin sheet lead, lined with oiled silk, and covered with leather. The expiratory valve can be moved more or less to one side from the opening it covers, so as to admit unmedicated air, whenever the vapour feels too pungent. The advantages of a face-piece of this kind are, that it can be fitted to every variety of face; that the patient requires no instructions, having nothing to do but to continue breathing in his usual way, either by his mouth or nostrils, as he pleases; and that it imposes no labour on the respiratory muscles, for when applied to any suitable form of inhaler, it may be kept attached to the face for any length of time without fatigue. As I recommend the face-piece in every kind of inhalation (except where substances have to be drawn into the larynx in the form of powder, when a glass tube may be used), it has been described before treating of individual medicines, to which attention may now be directed.

I. INHALATION OF MEDICINES WITH THE AID OF HEAT.

A. IN THE DRY WAY. OPIUM, it is well known, is very extensively inhaled, in China and India, as an indulgence; but it has not been much used in this manner in the practice of medicine, so far as I am aware. I sought to ascertain the temperature at which the active ingredients of opium are given off, and whether the effects of the fumes are due to morphia, or to new products generated by the heat applied. For this purpose, I heated morphia and the meconate of this alkaloid in an oil bath, using a long narrow

test-tube, on the recommendation of Dr. Bence Jones. I find that neither pure morphia nor the meconate are volatile, unless the heat be raised till they begin to be decomposed. This occurs at about 400° Fahr., when they become brown, and a brown sublimate begins to be condensed in the interior of the tube. The sublimate obtained from morphia is slightly reddened by nitric acid, but is not altered by the perchloride of iron. The sublimate from the meconate gave the same results, except on one occasion, when some minute colourless crystals were sublimated from it, at a temperature of from 380° to 400°. These were rendered of a deep red by nitric acid, and were reddened also by the perchloride of iron. We may conclude, therefore, that the effects produced by the inhalation of opium are chiefly, if not altogether, due to the generation of new products by the heat applied.

For the inhalation of opium, the Chinese use a pipe of a peculiar construction, which they heat over a spirit lamp. The preparation which they use is the watery extract, and the quantity employed at one time is said to be a piece about the size of a pea; but whether the dose requires to be increased with the habit of using it, as happens when opium is taken into the stomach, I have not been able to learn. The Chinese opium-pipe is too complicated for general use by patients, and anything in the form of a pipe would be liable to misuse; as Europeans, with the exception of the Turks, use a pipe merely to draw the air into the mouth and puff it out again, instead of inhaling with it, as I believe is the practice in all eastern nations. I have therefore contrived an inhaler, which is adapted for a great number of other medicines as well as opium. (Fig. 1.)



1. Larger Inhaler. 2. Smaller Inhaler.

It is made chiefly of tin, and consists of a cylindrical chamber, between four and five inches in diameter, and three or four inches deep, under the centre of which a spirit lamp is placed. The bottom of the inhaler consists of a thin piece of talc, on which is placed a small capsule of Berlin-ware, for the purpose of holding the extract of opium. A porcelain funnel-holder, which is placed on the talc, keeps the capsule exactly over the flame of the lamp. The talc allows sufficient heat to be transmitted to the opium, without conducting it to the sides of the inhaler, and, consequently, the air which is inhaled is not unduly heated. The lid of the inhaler is moveable; it is provided with a delicately balanced valve for the admission of air, and is connected with the face-piece before mentioned, by means of an elastic tube of wide calibre, as shewn in the engraving.[1]

The extract of opium, in the form of a pill, is placed in the capsule without any addition, and the spirit-lamp is lighted beneath it with a very small flame, which may be increased if requisite. The patient begins to inhale immediately the lamp is lighted, and continues to do so as long as anything is given off. The moisture contained in the extract is first expelled by the heat and inhaled, then follow the active principles of the opium, accompanied, after a time, with some smoke, and nothing is left but a porous carbonized mass. The process, being conducted slowly, usually lasts about ten minutes. If the volatile products be too irritating at any time, and excite coughing, the spirit-lamp should be removed for a minute, the inhalation being continued, however, in the mean time. The patient learns very soon to accommodate the process to his tolerance of the vapour, the pungency of which is very slight.

At the Hospital for Consumption at Brompton, the physicians to which institution kindly invited me to assist in contriving and superintending the inhalation of medicines, a considerable number of patients have inhaled opium during the last twenty months,—some of them having inhaled every evening for several weeks in succession, and discontinued only on leaving the hospital. Three or four of the patients had emphysema with chronic bronchitis; but the majority had phthisis, with cavities in the lungs—cases, in which the cough was more than usually troublesome, being generally chosen. The cough was relieved by the inhalation in the greater number of cases, and many of the patients increased in weight, and improved considerably in general health. Other remedies were used at the same time, and contributed to the improvement, but it seemed to be in part due to the inhalation. It has caused constipation of the bowels in only two or three of the patients; I have, however, experienced that effect when I have inhaled it for experiment. The quantity of watery extract of opium inhaled at one time has generally been two grains; but, in a few cases, three grains have been used. Crude opium was used in one case, instead of the watery extract; but the fumes it gives off are more irritating to the bronchial membrane, than those from the latter agent.

Morphia is, in my opinion, the most suitable preparation of opium for inhalation; but I have not recommended it at the Brompton Hos-

[1] The Inhalers are made by Matthews, Portugal Street.

pital, on account of its expense. It has, however, been inhaled by one patient, in the dose of half a grain, and I have inhaled it in the same quantity. It is much easier and pleasanter to inhale than the extract of opium, the extractive matter of which supplies some smoke, which is probably quite inert. It is of service to mix the morphia with a little dry plaster of Paris, to give it more weight and bulk.

With respect to the doses just mentioned, it should here be remarked that a medicine, when inhaled, cannot be all absorbed, as usually happens when it is taken into the stomach, for only part of it reaches the lungs, whilst another part is expired again with the air which has occupied the nostrils or mouth, the larynx, trachea, and larger bronchi. I am inclined to believe that about one-half of what is inhaled is usually absorbed; for, on inhaling air charged with vapour of chloroform from a bladder or small balloon, I experienced as much effect from ten minims, when it was breathed backwards and forwards for a minute or two, as from twenty minims, when the air was only breathed once.

Extract of Stramonium has been inhaled in the Brompton Hospital, with more or less relief, by five or six patients affected with asthma. Four grains were used, in the same manner as opium. The spirituous extract of aconite was used also by one patient, in the quantity of a grain; and it is probable that other extracts might be employed with advantage, in the same manner.

Gum-Resins. The fumes given off by these medicines may be inhaled in the same way as opium; but, as these fumes are pungent when in large quantity, it is advisable to powder two or three grains of the gum-resin, and mix it with about ten times as much of some inert powder, as gypsum, before exposing it to heat in the capsule. Used in this way, ammoniacum gives off a very fragrant odour, and, though rather pungent, can be inhaled very well by most persons. With steam the gum-resins can be easily inhaled, as the quantity of vapour which they give off, at the temperature of boiling water, is small. In this way, however, the patient gets no great amount of the medicine; but probably enough to exert some local action.

b. With Vapour of Water. For the inhalation of medicines along with the vapour of water, I employ the above-described inhaler, using a somewhat larger earthenware capsule than for inhalation in the dry way. Into this capsule or dish, about half an ounce of water is put, together with the medicine to be inhaled. The water is heated by the spirit-lamp, sometimes till it boils gently, but generally to a point rather short of boiling. This quantity of water yields as much vapour as a patient can conveniently breathe in about half an hour; and a much greater amount of the medicine can generally be inhaled than if it were placed in a larger quantity of water. In the case of some substances, indeed, as iodine, oil of turpentine, and camphor, which are particularly adapted for inhalation in this manner, the medicine is all inhaled before the water is finished.

Iodine may be most conveniently inhaled, by adding a small quantity of a strong spirituous solution of it to half an ounce of water. Twelve minims of the iodine tincture of the *Dublin Pharmacopœia*, containing one grain of iodine, are a suitable dose. The advantage

of adding the iodine in the form of tincture is, that it becomes equally diffused through the water. As the patient inhales, the water becomes less and less deep in colour, and by the time that he has inhaled about three-fourths of the water, he has inhaled the whole of the Iodine; and the remaining water is colourless. On account of its irritating effects on the stomach, it would probably be advisable that iodine should be given by inhalation, in every case in which its exhibition is required. Allusion is here made only to iodine, and not to the iodide of potassium, which, not being volatile at the heat of boiling water, cannot be inhaled in this manner. I very much doubt whether phthisis be one of the diseases to be benefited by iodine. It was inhaled by eighteen patients at Brompton, in the summer of 1849, and the following autumn and winter; they generally commenced with half a grain, and it was increased, in one or two cases, to two grains; but the usual dose was a grain once a day. In two or three cases it was discontinued, as it seemed to increase the cough, and one or two of the patients complained of head-ache from its use. It was continued, however, for more than a month, in ten of the cases; and I was present on nearly every occasion, to see it inhaled. It may consequently be said to have had a fair trial; but no benefit could be observed to follow its use. It was not inhaled as above recommended, but from a Woulfe's bottle, over the interior of which its spirituous solution was diffused; no artificial heat nor vapour of water was employed; the inhalation was continued till the iodine had disappeared. There were consequently no extraneous circumstances to interfere with its action.

Oil of Turpentine has been inhaled in a few cases, by putting twenty drops of it, with about half an ounce of water, into the capsule; the spirit-lamp being placed underneath, as usual. The boiling point of oil of turpentine is much higher than that of water; but owing to the great density of its vapour, as compared with steam, it evaporates more quickly than water, as happens with iodine, and consequently it is all inhaled before the water is consumed. The cough has appeared to be relieved in the cases in which it was used. One was a case of hæmoptysis, which subsided under its use, as, however, it might have done without it.

Camphor can be conveniently inhaled by putting thirty or forty drops of the tincture into half an ounce of water. It is usually consumed as soon as the water with which it is mixed. It has appeared to relieve the cough, in a few cases in which it has been used.

Benzoic Acid can be inhaled with the vapour of water. If six grains be put into half an ounce of water, the patient will inhale about half of it, and should leave off before the water is quite dried up, to avoid the pungent fumes which would otherwise arise. For the next inhalation, some water and about three grains more of benzoic acid can be added to that which remained. I have not seen sufficient of its employment to speak of its effects.

Creasote may be best inhaled in the same manner. If not more than about four drops be put into the half ounce of water, all of it will be inhaled. I have generally given creasote, however, with the inhaler marked number 2 in the engraving. Several patients have inhaled it at the Brompton Hospital, generally using three or four drops twice a-day. The benefit from its use has not been very great, but might

probably have been greater, if it had been inhaled with vapour of water, which itself is serviceable.

II. INHALATION OF MEDICINES AT THE ORDINARY TEMPERATURE.

The smaller inhaler, shewn in the engraving, was contrived for the inhalation of chloroform in medical and obstetric cases. It is made of brass tube, rather less than an inch in diameter, and is lined with bibulous paper to absorb what is put in, and afterwards yield it up in the form of vapour as the patient inhales. It is adapted by a screw to a face-piece similar to that employed with the other inhaler. It is not my intention to speak of chloroform on the present occasion. Amongst the other medicines which have been inhaled with it, are hydrocyanic acid and conia; and it is adapted for the inhalation of almost any agent that does not require the application of heat.

Hydrocyanic Acid has been inhaled by several patients at the Brompton Hospital, but it has not seemed to produce any good effects which would not have resulted from its use by deglutition. The quantity inhaled was generally twice as much as one would give by the stomach, and it was somewhat diluted with water, to diminish the pungency of the vapour, and enable the nurse to measure the quantity more easily in the minim glass.

Conia, the volatile alkaloid of spotted hemlock, has been inhaled by several patients. Some of this active principle having been kindly given to me by Mr. Morson, I first tried small doses on myself, and found that a minim of it could be inhaled without inconvenience. This was the quantity usually administered, although two minims were inhaled in a few cases. Dizziness was caused by it in many instances, especially when the larger dose was employed, but this effect subsided in less than an hour. The cough was usually relieved by it, and in two or three cases of asthma, the breathing was also relieved. The conia was diluted with nine parts of spirit, both for convenience in giving the right dose, and in order that it might be better diffused over the paper in the inhaler, and offer a larger surface for evaporation.

The following experiment, performed in 1848, on the inhalation of conia, may not be uninteresting, as shewing that this is one of the agents which might be employed for the prevention of pain in operations.

A chaffinch was placed in a covered glass jar, holding 100 cubic inches, and one grain of conia was put in. The bird seemed unaffected for ten minutes, and the jar was opened with the intention of trying a larger dose; a minute afterwards, however, it fell on its side and lay, not relaxed, but like a stuffed bird, as its head did not droop. It moved its legs, now and then, by convulsive starts. It was insensible to pricking and pinching, although, from the appearance and motion of its eyes, it seemed to be conscious all the time. It recovered its sensibility in about two minutes, but was not able to stand for ten minutes. It afterwards appeared well.

In a guinea-pig, in which the inhalation was continued till a fatal effect was produced, violent convulsions occurred before death, and the heart remained irritable afterwards.

Ammonia has been inhaled with great relief in a few cases, in which more or less bronchitis, with difficulty of expectoration, existed.

The inhaler employed was similar to that described by Mr. Smee in the *Medical Gazette* for 1843, except that an elastic tube and face-piece were attached to it. It consists of a Woulfe's bottle with wide apertures, and a tube for the entrance of air, descending a certain way, but *not* dipping into the solution employed. The ammonia was given weaker than by Mr. Smee. Two ounces or so of cold water remained constantly in the bottle; and when it was about to be used, twenty minims of strong solution of ammonia were added, and the patient inhaled for half an hour, or as long as ammonia continued to be given off. The inhalation was repeated twice or three times a day.

It may be remarked, that either ammonia or hydrocyanic acid might be inhaled, along with vapour of water, in the opium-inhaler first described; so that a person provided with it might apply it in almost every kind of inhalation.

Chlorine has been inhaled by a few patients, in different stages of phthisis, but with no advantage, although it was continued by some of them for a few weeks. To obtain it, some chloride of lime was put into the Woulfe's bottle-inhaler, just mentioned, and moistened with a little water. When it was wished to increase the quantity of chlorine beyond the small amount spontaneously given off, the inspiratory valve of the face-piece was prevented from closing completely, and a little of the expired air being thus allowed to get into the bottle, the carbonic acid it contained acted on the lime, and caused chlorine to be liberated.

It will be observed, that the medicines mentioned above have all been recommended to be inhaled, either alone, or with the vapour of water: and, as a general rule, it is better for medicines to be inhaled singly; since, no two being equally volatile, they could not be inhaled, if combined, in the proportions in which they might be mixed. The method of administering medicines by inhalation also being yet as it were, in its infancy, the exhibition of one at a time is better adapted for the collection of correct observations respecting their effects.

54, Frith-street, Soho, January 2, 1851.

REMARKS ON CONTINUED FEVER, AND MORE ESPECIALLY ON THE CONDITION OF THE BRAIN IN FEVER.

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(*Read before the Hull Medical Society, Oct. 26th*, 1850.)

As Englishmen we must honestly admit, in spite of our proud recollections of what English observation has achieved from the days of Sydenham downwards, that the French have won imperishable laurels in the important field of Febrile Pathology. It is due, indeed, to the memory of Sir John Pringle to assert, that, even a hundred years ago, he caught a glimpse of the doctrine that, when fever proves fatal, it mostly or often does so by the production of certain specific organic lesions. This truth, though crudely stated, is embodied in the assertion, that "he examined ten patients who died of typhus, and came to the conclusion, that, when it proves fatal, it generally terminates

either in an actual mortification of some part, or in an abscess of the brain; but that the intestines are more particularly disposed to mortify."[1] This was in 1750. Ten years afterwards, Rœderer and Wagler, in Gottingen, state, as the result of their dissections in an epidemic typhus, that "they found intense inflammation of the alimentary canal; and that either gangrene and sphacelus occurred in the tract of the large intestines, or else that the mucous follicles of the *small* intestines were enlarged, with similar spots of gangrene or sphacelus."[2] In 1803, M. Prost opened the bodies of upwards of one hundred and fifty persons, who had died of *fièvre ataxique*, "without observing anything remarkable in the brain, but he always found inflammation of the mucous membrane of the intestines, with or without excoriation."[3] Following up these researches, Louis, Andral, Bretonneau, Broussais, Bouillaud, Petit, Serres, and others, have immensely increased our knowledge of fever by their separate contributions to its pathology. Louis was the first to appropriate the term *typhoid* fever to the morbid state which accompanies the lesion of Peyer's glands; an affection first distinctly pointed out by Bretonneau, under the name of *dothinenterite*. It is true that Petit and Serres, as well as Andral and Broussais, had previously described this enteric exanthem through all its stages, but had failed to mark its especial seat in the follicles. Andral objected to the application, by Louis, of the term *typhoid* to the fever accompanying this lesion of Peyer's glands. But recent observations by our contemporary, Dr. William Jenner, warrant the distinctive epithet of Louis, *at least for practical purposes*. For Dr. Jenner, as is well known, has discovered that *a rose-coloured rash* on the skin is characteristic of *typhoid* fever; while *mulberry-spots* are equally distinctive of *typhus*. His experience, fortified by two thousand cases, enables him to assert, that if by the eighth day of the disease the eruption presents the true *typhus*, or *mulberry* character, then, if death ensues, the follicular intestinal lesions will not be discovered. His conclusion is, that the *rose-coloured rash* is generally, though not invariably, associated with the follicular exanthem of *typhoid* fever; but that the *mulberry rash*, characteristic of *typhus* fever, is never associated with that peculiar enteric lesion. An American writer, Dr. Bartlett, is of the same opinion, and asserts "that there is as much difference between *typhus* and *typhoid* fever, as there is between measles and scarlatina."[4] The non-acquaintance of English observers, until of late years, with the follicular exanthem of *typhoid* fever, has led some French physicians, and especially M. Grisolle, to confine the disease to the continent, and to distinguish it from *typhus* fever, which they consider to be peculiar chiefly to England. In the article "Typhus", of the *Dictionnaire de Médecine*, M. Dalmas esteems *typhoid* and *typhus* to be "analogous", but not identical. It may be doubted, after all, whether the distinction can be maintained, except for practical purposes. Nor am I convinced, that *typhoid* and *typhus* are essentially distinct diseases. Both are forms of adynamic fever—mere varieties—exhibiting different phenomena

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[1] Williams, Dr. Robert. Elements of Medicine, vol. i, p. 42.
[2] Ibidem.
[3] Ibidem.
[4] Dunglison. Practice of Medicine, vol. ii, p. 494.

under different circumstances, the follicular abdominal lesion being generally present in France and America, whilst in England it is comparatively much rarer. "At certain times and places", says Dr. Watson (in other words, in certain epidemics), "the ulceration of the inner surface of the intestines is far less common than in others. It was comparatively rare in an epidemic, of which I witnessed some part in Edinburgh. Then I came to London; and for several years I never saw a body opened after death by continued fever, without finding ulcers in the bowels. More recently, however, and especially during the present epidemic (1838), I have looked for them carefully in many instances that have proved fatal in the Middlesex Hospital, and have discovered neither ulceration, nor any other apparent change in the follicles of the intestines".[1] As additional proof that typhoid and typhus fevers are simply varieties of the same essential disease, of which the *typhoid* form prevails chiefly on the continent and in America, and *typhus* chiefly, though by no means exclusively, in England, it has been observed that on the examination of those who have died of ship-fever, which is an adynamic petechial typhus, the follicular lesion is generally absent, *and yet exceptional cases of its presence now and then occur*. On the other hand, Dr. William Jenner himself admits, that, occasionally, though very rarely, in typhoid fever with the rose rash, the follicular lesion is wanting. Again, M. De Claubry has proved, in a prize essay on the *Identity of Typhus and Typhoid Fever*, to the satisfaction of MM. Chomel and Louis themselves, that the typhoid fever of M. Louis is the same as the typhus of armies, and equally contagious.[2]

Professor Rokitansky, of Vienna, has developed a still more novel view of the nature of the typhoid affection, or "typhus", as he calls it. His view is that it is a true dyscrasy, or cachexia, and that the pathological process is characterised by the deposition of a peculiar morbid product, which forthwith undergoes a distinct series of morbid changes. "The seat of this process is various, and depends upon the specific relation of the poison of typhus to certain organs. The tissues most subject to this deposition are *the mucous membranes, especially the space between the mucous and the muscular coat, and the mesenteric glands;* and in Austria, at least, where the observations were made, *the mucous membrane of the ileum* is most frequently affected; but it occurs also *in the bronchia and lungs*, and, although very rarely, *in the colon.* This typhus deposit, according to M. Vogel, usually appears as a more or less firm lardaceous mass, of a yellowish or whitish colour, which is deposited in greater or less abundance amongst the normal tissues, gradually softens, and, as the normal elements of the region become also involved in the process, forms ulcers, which either heal by cicatrization, or continue until the death of the patient. In many cases, however, death takes place before the commencement of the softening. The typhous matter, under the microscope, appears to consist of three elements; an amorphous semi-transparent stroma, very minute molecular granules, and larger corpuscles, which seem to be imperfect cells and cytoblasts. Histologically it cannot be distinguished from

[1] Watson's Lectures on the Practice of Physic, vol. ii, p. 689.
[2] Dunglison. Practice of Medicine, vol. ii, p. 493.

the deposits, that occur in scrophulosis and tuberculosis."[1] The local importance of this deposit cannot be questioned, as many cases terminate fatally from its effects,—ulceration, perforation of the intestine, etc.

CONDITION OF THE BRAIN IN FEVER. The microscope holds out to us a prospect of settling the much disputed point, whether or not the brain often suffers from inflammatory lesions in fever? The eye is, perhaps, competent to decide on the evidences of inflammation in the membranes; but it often fails in deciding the question, as it concerns the substance of the brain. For it is not always easy, even to careful observers, to distinguish between the hyperæmic condition which is the result of inflammation, and that which may be termed *cadaveric*. The conclusions of Dr. Hughes Bennett, as to the results of simple inflammation of the brain, from careful observation by the microscope, seem, in many points, applicable to the case of inflamed cerebrum in fever. They are as follow:—

1. "That two kinds of cerebral and spinal softening exist, an inflammatory and a non-inflammatory, which may always be distinguished from each other by the microscope.

2. "That inflammatory softening is characterised by the presence of exudation corpuscles and granules, whilst in non-inflammatory softening these bodies are never found.

3. "That the nature of inflammatory softening consists in the formation and development of nucleated cells in exuded blood-plasma; whilst the nature of non-inflammatory softening consists in the mechanical destruction or maceration of the nervous tissue in serum, or is the result of putrefaction.

4. "That non-inflammatory softening, unaccompanied by hæmorhage, is usually *post-mortem*, and causes no symptoms; whilst uncomplicated inflammatory softening always causes marked symptoms, which, however, vary according to the seat of the lesion.

5. "That the inflammatory and non-inflammatory softenings have frequently been confounded together by morbid anatomists, it being impossible to distinguish one from the other with any certainty by the naked eye.

6. "That inflammation in the nervous centres has, in several instances, been demonstrated by means of the microscope, after it has escaped the search of good morbid anatomists, and been indicated by most unequivocal symptoms.

7. "That every different coloured softening has, at various times, been found to be connected with inflammation; but that yellow and white softenings are most frequently non-inflammatory, whilst the fawn-coloured softening is non-inflammatory.

8. "That red softenings usually depend on congestion, or the direct extravasation of blood; yellow softenings on the imbibition of the colouring matter of the blood; fawn and grey-coloured softenings on the presence of grey exudation corpuscles; and white softenings, in the great majority of cases, are *post-mortem*, and the result of maceration in the serum."[2]

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[1] DUNGLISON. Practice of Medicine, vol. ii, p. 494.

[2] SOLLY on the Structure, Physiology, and Diseases of the Human Brain. Second Edition, p. 386; quoted from *Edinburgh Med. and Surg. Journ.*, vol. lx, p. 398.

Perhaps no subject has more puzzled medical observers than the true condition of the brain and nervous centres in continued fevers; and in no case has speculative error produced more extensive practical mischief. Genuine encephalitis may be mistaken for continued fever with intercurrent inflammation of the brain; and continued fever so complicated may be treated for pure encephalitis, with its symptomatic febrile excitement. Close observation and an acute judgment are required for discriminating those cases of fever in which such inflammation occurs, and for directing the appropriate treatment. Moreover, during the present prevailing constitution of the seasons, we often witness a condition of the brain in fever, which merely simulates inflammatory congestion, and depends either on the want of a normal *vis a tergo* in the circulation, or on an impaired function of nutrition favouring a species of *ramollissement* of the tissues. This kind of softening is not owing to the effused serosity from distension of the capillaries, but is always in proportion to the fluidity of the blood, and the tendency of that fluid to run into putrefaction. "There is a modification of nutrition", says Dr. Carswell, "which is accompanied by softening of *all* the tissues (those of the brain of course included), and which seems to depend on a morbid condition of the blood. Such is the case in the worst forms of typhoid fevers, small-pox, scarlatina, measles, etc., and when certain poisons have been introduced into the circulation."[1]

The inquiry, therefore, *what is the condition of the brain in fever?* is fraught with the deepest interest. Dr. Copland states a great and golden truth, when he says: "*Predominant cerebral affection* less frequently amounts to actual disease, or passes into disorganization, in fevers, than has been very generally supposed; the disorder most commonly existing in this quarter, *in low fevers especially*, being more functional than structural; depending more upon the state of organic nervous influence in the organ, than upon inflammatory or other lesions. The effusions and congestions observed in fatal cases, are probably in great measure *post-mortem* changes; and, even granting their existence during life, they are often insufficient to account for the symptoms referable to this part."[2] I propose first, to confirm this great truth by a reference to the best authorities; and secondly, to guard the doctrine from abuse, by pointing out those deviations from a general rule, which have ever and anon occurred to the most trustworthy observers.

I. CEREBRAL AFFECTION IN FEVERS IS MORE COMMONLY FUNCTIONAL THAN STRUCTURAL.

M. Louis does not seem inclined to believe that either the general softness or hardness of the substance of the brain, occasionally observed in fever, ought to be considered as the results of inflammation, because the symptoms during life do not bear an appreciable relation to these appearances. He also affirms, that having examined with much attention the cerebral membranes in more than five hundred cases, he has in no instance seen adhesions between the arachnoid and pia mater, either at the surface or in the ventricles of the brain. Moreover, his exceptional cases to perfect integrity of cerebral structure, though in-

[1] Carswell. Pathological Anatomy. Article, "Softening." Dictionary of Practical Medicine, p. 920.

dicating an occasional approximation to inflammation, are, for the most part, much too slight to warrant Dr. Clutterbuck's theory, that fever results from inflammation of the substance of the brain. Thus he states, that, "besides a case in which the inside of the dura mater presented a thin pseudo-membrane, in *four* there was a little fluid between the dura mater and arachnoid; in *more than one half* the sub-arachnoid cellular tissue was infiltrated with serosity, and in *one half* the pia mater was injected with blood. In *three-sevenths* the cortical substance was redder than natural; in *six-sevenths* the medullary matter was injected, these latter appearances being most striking when death took place at an early stage; in *six* cases the density of the brain was slightly increased; in *five* it was diminished."[1] Andral, in like manner affirms, that no truth is better demonstrated in medicine than that every nervous derangement may exist in fever, and yet no appreciable alteration of the brain or its membranes be found after death. "In a great number of cases", he says, "the substance, so far from being injected, appeared remarkably pale, and this paleness frequently coincided with an equal want of colour in the membrane." Chomel's observations are strongly corroborative of those of Louis and Andral. He gives the following statement in respect to thirty-eight fatal cases, in which the brain was carefully and minutely inspected by him. "In fifteen out of the thirty-eight, no morbid appearance at all was perceptible: in twelve there was some serous fluid, from a tea-spoonful to a table-spoonful, in the ventricles: in seven there was what he calls *œdema of the meninges*, effusion, that is, in the meshes of the pia mater: in six, general but slight diminution of consistence: in two, some alteration of density: and in five, a speckled appearance of the cerebral substance."[2] Dr. Watson's testimony is confirmatory of the same general view. "Not only", says he, "do we fail to discover, in many instances, any traces of inflammation, upon inspecting the dead brain, but we find that, during the life of the patient, measures which would be likely to aggravate any inflammatory mischief—strong stimulants for example, wine or brandy—do actually and obviously, in cases innumerable, relieve the comatose symptoms, and benefit the patient. The inference seems unavoidable, that the coma, in such cases, has some other cause than the mechanical pressure which arises sometimes from the effusion of fluid upon the surface of the brain, or within its ventricles; and that other cause is supplied by *the poisoned blood*."[3]

We have the light of analogy thrown on this view of the subject by what occurs in scarlet fever in its malignant forms. Hence Dr. Graves, in describing the forms of scarlatina, sensibly remarks:—"In this form of the disease, where the pulse, without becoming strong, *at once became extremely rapid*, bore venesection badly, and required great caution even in the application of leeches; the nervous symptoms only appeared accelerated by the system of depletion, although the heat of the skin suggested its employment. The derangement of the brain and nerves in this form depended on something more than the violence of the circulation, and originated in something altogether different from mere cerebral inflammation or congestion. What that something was

[1] Cyclopædia of Practical Medicine, vol. ii, p. 178.
[2] As quoted by Dr. Watson in his Lectures, vol. ii, p. 683.
[3] Watson. Lectures on the Principles and Practice of Medicine, vol. ii, p. 683.

I cannot even conjecture; but it was probably the result of *an intense poisoning of the system by the animal miasma of the scarlet fever.*"[1] Cholera, in its worst forms, seems to point to a similar explanation of sudden collapse and death. And we may fairly conjecture, that *some* of those sudden deaths in fever, which occasionally take us by surprise, may be thus accounted for. Dr. Alison's remarks on *post-mortem* appearances within the cranium after idiopathic fever, go very much to the same point as those of the authorities already quoted. He tells us that they are confined, in by far the greater number of cases, to increase of the natural serous exhalation on the different surfaces, particularly in the ventricles and beneath the arachnoid coat, that it very seldom amounts to an ounce, and that it is very generally much less than in fatal cases of idiopathic inflammation within the cranium, whether acute or chronic. He makes equally light of the turgescence of the blood-vessels, and thinks that even depositions of lymph are often due to previous disease rather than to fever.[2]

II. FEVER IS SOMETIMES ASSOCIATED WITH CEREBRAL INFLAMMATION.

Having thus adduced the authority of a few of the highest names in French and English medicine as to the fact of the general absence, in fever, of unequivocal traces of cerebral inflammation, it becomes my duty equally to guard that doctrine against the misconception *that fever is never associated with cerebral inflammation.* I shall, therefore, marshal a sufficient amount of evidence, on the other side, to qualify the too sweeping conclusion which might be drawn from a *primâ facie* view of the subject. And it will at once appear, that not only do stray cases of cerebral inflammation occasionally break the uniformity of a non-inflammatory series; but also that epidemics are wont, in certain seasons, to arise with types of sthenic action, and with a decided bias to cerebral lesions.

a. Stray Cases of Cerebral Inflammation occur in Fever. Dr. Mackintosh has left on record some particulars of an epidemic fever in Edinburgh in 1827. The disease was mild, especially in the beginning; for, out of the first hundred and forty cases, there was only one death. Afterwards the deaths were in the proportion of one in thirty-seven. Amongst other results of the disease, as exhibited in various organs by dissection, he tells us that "in two cases, there was well-marked arachnitis, namely, by extensive effusion of coagulable lymph, which was deposited between the arachnoid and dura mater. In both there was great vascular turgescence; some effusion into the ventricles; and in one of these there was white ramollissement in the centre of the brain".[3] Dr. Duncan Junr.'s *Clinical Reports* for 1818, in like manner furnish us, from the pen of Dr. Craigie, with two dissections of cases of fever with cerebral lesion, in one of which there was effusion in the left lateral ventricle to the amount of from one to two ounces of transparent colourless fluid, with the rest of the organs sound; and in the other there was a similar effusion, but its amount is not specified.[4] Dr. Roupell, in his *Treatise on Typhus Fever,* mentions a

[1] Graves. System of Clinical Medicine, p. 506.
[2] Alison. Pathology and Practice of Medicine, pp. 408, 409.
[3] Mackintosh. Practice of Physic, vol. i, p. 172.
[4] Duncan's Edinburgh Clinical Reports, pp. 103-4.

case of effusion into the head, indicated by opening of the sutures. The youth, aegd. 19, recovered, and the sutures closed. In another, "lymph and serum were copiously effused into the ventricles, and a layer of lymph, fully a line in thickness, was found on the surface of the hemispheres. The other viscera were healthy." In another "there was great vascularity of the pia mater, especially at the base of the brain. The arachnoid membrane was slightly opaque, and there was a bloody fluid effused into the theca of the spine". And, in another, "the ventricles of the brain contained serous effusion; and a large quantity of bloody fluid filled the spinal sheath".[1] In one of Andral's cases of fever, with ataxic symptoms, and alternations of delirium with perfect intelligence, accompanied with hydrophobia and convulsions, "the cerebral sinuses were filled with blood, the cerebral substance of ordinary consistence, marked with a considerable quantity of red points, and about a spoonful of limpid serum in each lateral ventricle".[2]

b. Epidemics occasionally arise with a decided bias to Cerebral Inflammation. In the Bristol epidemic of 1820, as reported by Dr. Pritchard, he refers to cases of cephalic fever, and says that, when the symptoms of severe disease were not subdued by active treatment, "it was almost uniformly proved by examination after death, that the brain had suffered irreparable injury."[3] In the London epidemic reported by Dr. Tweedie, it would also seem that head-affections were predominant. For he tells us, that "of 54 cases examined at the London Fever Hospital, 37 exhibited evident traces of previous inflammation of the brain."[4] Dr. Cheyne's report of the Hardwick Fever Hospital in 1816-17, presents us with seven examples of cerebral lesion of the most decisive character:—for in one there were six ounces of fluid in the ventricles of the brain; in a second, five ounces of fluid in the ventricles; in a third, the minute vessels of the cortical substance of the brain were turgid, imparting to it a very red colour; in a fourth, the tunica arachnoidea was much thickened, with effusion betwixt it and the pia mater, and several ounces of fluid in the ventricles; in a fifth, the vessels of the brain were turgid, and there was one ounce of fluid in the ventricles; in a sixth, there was serous effusion under the arachnoid membrane, vascularity of the pia mater considerably increased, brain firm, a little fluid in the ventricles, and the velum interpositum thickened; and in the seventh, there was increased vascularity of the pia mater, with several red points on its surface; the texture of the brain very firm, and about ʒiij of serum in the ventricles.[5] Dr. Cheyne's report of the same Fever Hospital for 1817-18, yields ten examples of cerebral lesion equally decisive. I need not specify all: but in one the pia mater was highly inflamed, and the ventricle contained between three and four ounces of fluid. In another there was a layer of effused blood in different situations under the pia mater of both hemispheres. In another the same extravasation of blood was seen, and the arachnoid membrane between the convolutions of the brain was much thickened and opaque, and contained under it a gelatinous substance. In an-

[1] Roupell on Typhus Fever, pp. 107-8-9-10.
[2] Andral's Clinique Médicale, vol. ii, p. 635.
[3] Pritchard's History of Bristol Epidemic, p. 67.
[4] Cyclopædia of Practical Medicine, vol. ii, p. 178.
[5] Dublin Hospital Reports, vol. i, pp. 68, 74, 75, 79, 80, 85, 107, 111, 114.

other the membranes were thicker, firmer, and more opaque than natural, and a small quantity of blood was effused into the ventricles, the sides of which were very vascular. In another, along with signs of vascular engorgement of the membranes as well as substance of the brain, the ventricles were filled with serum. But I will not multiply details.[1] These statements by Dr. Cheyne are followed by a tabular view of the dissections in the latter of these epidemic fevers, from the pen of Mr. Crawford, from which it appears, that while there were only twenty-three examples of serious lesions in the abdomen, and twenty-two in the chest, there were thirty-seven in the head.[2] In many of the last, too, it is particularly noticed that all the other organs were free from lesion. It is impossible to compare these dissections with those reported by Andral without being struck with the fact, that cerebral lesions were, in the great French pathologist's experience, infinitely rarer and much less severe than those in Dr. Cheyne's, while the former records far more numerous and formidable abdominal lesions. It is most evident, therefore, that epidemics vary much as to the predominance of the lesion of one set of organs over that of another.

My next and final proof of this fact will be found in the description of the fever which prevailed in Scotland in 1843. Dr. Cormack[3] has minutely described the disease as it prevailed in Edinburgh; and Dr. J. Arrott[4] has given a short but good account of it as it occurred in Dundee. The same epidemic has also been described by Dr. Alison, Dr. Wardell, and others. Black vomiting was common, and the bile was generally very viscid. The appearances after death corresponded remarkably with those observed by the French Commission in the yellow fever of Gibraltar in 1828, particularly as regarded the condition of the liver, which M. Louis considers to be the anatomical character of yellow fever. Dr. Cormack has given a complete account of the Natural History and Pathology of the Edinburgh epidemic, and has elaborately compared it with other fevers.

Bearing in mind these exceptional inflammatory lesions of the brain, let us revert to the result of the voluminous post-mortem researches of the French pathologists,—namely, that in typhoid fever, *with the rose-coloured rash on the skin and the follicular exanthem in the bowels*, actual cerebral lesion is a most rare occurrence. Although we may have the most marked head-symptoms, our minds may in such cases be very much at ease respecting the state of the brain, and our efforts may be employed otherwise than in the worse than utopian effort to quell a simulated arachnitis. For it has been laid down as a principle, that "in this disease there is not a nervous symptom which may not manifest itself without any appreciable alteration in the brain and its dependencies; and that when anatomical lesions of the nervous centres are met with, they are so slight and inconstant as not to permit any rational consequence to be deduced from them." Andral's remark on this subject is extremely important and instructive. "May

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[1] Dublin Hospital Reports, vol. ii, pp. 83, 89, 90, 91, 97, 101, 103, 107.
[2] Ibid., vol. ii, pp. 110 to 127.
[3] Cormack, Dr. John R., on the Fever of 1843. Edinburgh: 1843.
[4] Arrott, Dr. J. Edinburgh Monthly Journal for 1844, p. 256; from *Scottish and North of England Medical Gazette.*

we refer", says he, " the nervous disturbances in bad fevers to the state of the small intestine, and particularly to dothinenterite? Certainly we may in a great number of cases, but not in all. In several of these cases, where, in order to account for the very severe symptoms, nothing is found but some follicular patches swollen or slightly ulcerated, there is some ground for hesitating to refer such great disturbance to such slight lesions; there is reason for thinking that behind these visible lesions, and before their appearance, there existed in the previous state of the patient some serious derangement, without which such alarming symptoms would not have been produced. No; the intestinal affection is not the entire cause in all such cases; and in order to account for every thing which coincides with it, or appears after it, it becomes necessary to introduce other elements, which pathological anatomy has not yet discovered by means of the scalpel. Here then, as in numberless other cases, that which we perceive is but a part of that which exists." He then refers first to those cases, in which the same nervous symptoms existed with *lesions of other organs*, but without any intestinal lesion appreciable by anatomy; and secondly to those uncommon, but yet real cases, in which, *in the absence of any organic lesion appreciable after death*, the same nervous symptoms were still present.[1]

Andral goes on to insist, that " these fevers never become severe except in consequence of a disturbance, which supervenes in the innervation and hematosis." Bouillaud and Chaufford confirm this view, " by establishing the reality of the alterations, which, on the one hand the blood, and on the other hand the nervous centres, undergo in a great number of fevers." It would seem, alike from the observations of Andral, Raciborski, and Simon, that the quantity of fibrin in the blood is certainly decreased, except on the supervention of inflammatory symptoms, when it increases. This diminution of fibrin Andral ascribes to a true poisoning of the blood. The corpuscles, as repeatedly examined by M. Donné under the microscope, did not, in the most marked forms of fever, exhibit any difference from those of healthy blood, although on the average less in amount. It also appears, that a decided decrease of the urea below the healthy average is a characteristic of the urine in typhus. Andral further shews, that " other organs also, though less frequently than the digestive tube, may become the occasion of this profound disturbance of innervation and hematosis"; and he instances phlebitis, pneumonia, erysipelas, variola, synovitis, and other diseases, as often producing it. He further refers to the poisoning of the blood by miasms, virus, and matters in a state of putrefaction, as a fruitful source of the disturbances and lesions in fever. The truth seems to be, that though various poisonous matters introduced into the circulation may depress the system, and predispose it for the full effect of a more specific poison, yet, except in those simulations of typhus fever supervening on other diseases, the miasm of typhus or typhoid fever is a *sine quâ non* to the production of these fevers. Assuming this fact, then, after the period of its latency in the blood has passed, the *primary* operation of the specific poison is on the great nervous centres, and on the organs and systems dependent on them, and this consti-

[1] Andral's Clinique Médicale, translated by Dr. Spillan, vol. ii, p. 628.

tutes the febrile explosion. But its *secondary* operation, after an indefinite period, is on certain organs or tissues, in which are produced local lesions or alterations of structure. The mucous membrane of some portion of the digestive tube, or Peyer's glands, is the most common seat of such injury; next, but far less frequently, the brain or its membranes; and, perhaps still less frequently, the parenchyma or bronchial membrane of the lungs. Such is the ordinary course of the malady; although it also appears probable from Andral's observation quoted above, that adynamic or ataxic febrile phenomena, simulating typhus, may also stand in the relation of effect to various other organic lesions and constitutional maladies. The law that fever precedes *the secondary specific lesions* from the morbid poison of typhus or typhoid fever is consonant with the laws of other morbid poisons, as those of small-pox, scarlet-fever, intermittent fever, etc.[1] Chomel had an opportunity of examining a patient, who died on the seventh day of typhoid fever, and he found even then the follicles of the mucous membrane of the intestinal tube enlarged.

Practical Remarks. Coupling the knowledge we have acquired from the French pathologists, respecting the prevalence of follicular lesion of the small intestines in typhoid fever on the continent, with what we know of its occasional occurrence in England, we shall be prepared for a rigid analysis of the cerebral symptoms in each case, with a view to ascertain whether these are the sympathetic consequences of enteric irritation, or the result of positive organic disease of the nervous centres. Nor must we lose sight of the fact, that febrile irritation has often the power to develope constitutional peculiarities of the nervous system, independently of any ascertained local organic lesion. Andral has recorded several cases of this kind. Thus in one, in which "no organic lesion was detected in any part of the body", there had been febrile delirium, and "from time to time the face and extremities were agitated by convulsive movements". On this case Andral pointedly remarks: "Can it be said that the disease existed nowhere, or, if some will have it so, that it existed everywhere? We shall not reason so; we shall place the seat of the evil where the symptoms pointed it out, namely, *in the brain:* but this fact is to be added to several others, which prove the insufficiency of our present means of investigation to discover, in the dead brain, the traces of the disease seated in it."[2] In another case, in which, towards the close of the disease, there supervened symptoms of tetanus, but in which the scalpel traced marks of enteric disease chiefly, Andral's remark is the following:—"If the tetanus was, in this individual, the result of irritation, transmitted sympathetically from the stomach to the spinal cord, there must be admitted to exist in this person a special predisposition, in virtue of which tetanus would have equally declared itself, no matter what organ had become the seat of irritation". Another form of cerebral irritation, which, however much it

[1] These *secondary specific lesions* are to be distinguished from those produced by *epidemic influence*, an influence which, as Dr. C. W. Bell justly remarks, gives to fevers "a pseudo-specific character, by superimposing upon them the peculiar derangement of function, which it is its province to produce." *Trans. of Prov. Med. Assoc.*, vol. xvii, p. 28.

[2] Andral's Clinique Médicale, translated by Dr. Spillan, vol. ii, p. 701.

may simulate phrenitis, implies a condition of the brain altogether removed from that of inflammation, is the result of depressing mental causes. A case of this kind occurs to my recollection, which was a most instructive example of the depressing power of intense mental agony, want of sleep, exhaustion from fatigue both of body and mind, and frequent fasting and irregularities in diet. Delirium, with fever, set in very early, and with it very soon the mulberry rash and petechiæ of malignant typhus. I had not shed a drop of blood by leech, or by lancet, and the antiphlogistic plan was soon exchanged for wine and stimulants; but collapse and death rapidly ensued. If again we find profound disturbance of the innervation combined with the rose-coloured rash, or, in its absence, with local tenderness on pressure over the ileum, our attention will be withdrawn from too exclusive an examination of the brain to the more pressing claims of the abdominal mischief for prompt remedial measures.

We have further to study the prevailing character of epidemic diseases, both as it regards their evident bias to affect one class of organs rather than another, and also as they may assume a low and typhoid, or a high-toned and inflammatory bearing. We must recollect also, that even the same epidemic will undergo a change in its character from the modifying influence of the seasons. "This, however, I am certain of", said the illustrious Sydenham, "from numerous careful observations, that the same method which cures in the middle of the year may possibly prove destructive at the conclusion of it". This observation I have myself verified at St. Bartholomew's Hospital. I have seen cases, with a small and depressed pulse, demanding wine to sustain the heart, and simultaneous local cuppings to free an engorged lung, at one period of the year; and other cases in the same epidemic at another season, requiring the withdrawal of the wine, and even the cautious use of the lancet, owing to their assumption of the inflammatory type, with a sharp and resisting pulse. And here I may be allowed to state my decided conviction, that a great change has lately, and especially during the choleraic constitution of the atmosphere, come over the nature of fever, and, in a less degree, over inflammatory diseases in general. This is no new thing. Fifty years ago puerperal fever, according to the united testimony of all the best writers of that period, would not bear bleeding or active purgation. Then followed a change in the seasons, which, according to the experience of Dr. Gordon of Aberdeen, Mr. Hey of Leeds, Dr. Armstrong of Sunderland, Dr. Campbell of Edinburgh, and others, demanded the most heroic depletory measures. I myself witnessed, and put on record, two epidemic maladies, typhus[1] and scarlet fever;[2] the former in 1819, and the latter in 1832; both of which required active depletion, both general and local. Since that period we have witnessed the recurrence of a depressing constitution of the atmosphere, which absolutely forbids all active lowering measures. On the contrary, so weakened are the vital powers, more especially in fever, that if we use the lancet we almost certainly destroy the patient; while leeches themselves sometimes render recovery difficult, or impossible. In short, a conservative treatment, consisting of the judicious combination of quinine, cordial

[1] History of the Bridlington Epidemic Fever in 1818 and 1819.
[2] Edinburgh Med. and Surg. Journal, October 1, 1833.

diaphoretics, diluted wines, and good broths, commenced very early in the course of the disease, promises more success than any other, and seems to sustain the function of nutrition, as well as to obviate those local congestions of the brain, and other organs, which appear to steal on our patients, from the loss of the *vis a tergo* in the heart and arteries. Sydenham, also, bids us attend to the type of contemporary diseases; adding, that the character of a fever "may often be sufficiently known by carefully attending to other diseases". Nor need I remind my readers how much, in ordinary seasons at least, a man's condition, situation, and circumstances, will often modify the complexion of a fever. "A well-fed, and previously healthy soldier, who has no cares, will in general have a high-toned fever; whereas a poor, ill-fed, and badly-clothed, labouring man, worn out by cares and anxieties, and living in an ill-ventilated and filthy apartment, will be affected with one of an opposite character."

In other adynamic and malignant forms of fever, we can understand with Dr. Watson how the stupor is occasioned by the poisoned blood, and not by effusion in the brain, and we cannot, therefore, hesitate, in such cases, to administer cordials. In these adynamic forms of fever, Dr. Copland strongly recommends the chlorate of potassa; and Dr. Watson prescribes a solution of it in water, in the proportion of a drachm to a pint, as a drink. He states, that under the use of a pint, or a pint and a half of this solution daily, he has noticed, in many instances, a speedy improvement of the tongue; which, from being furred or brown and dry, has become cleaner or moist. At the same time, bearing in mind the depressing influences, with which our patients have to struggle, we give stimulants at the proper time, and with a bold hand. The knowledge, again, that the fibrin of the blood is diminished in typhus fever, and that the blood is doubly poisoned by an excess of urea, in addition to the specific miasm, will confirm us in the necessity of sustaining the vital powers, and of avoiding, as much as possible, all lowering agencies. Now and then, indeed, we meet with cases, in which life is so completely overwhelmed by the depressing miasm, as to hold all our efforts at defiance. For sporadic cases occasionally arise, of so unusually malignant a character as to defy all the resources of medicine. Thus, a few years ago, I was called to a family in Holderness, plunged into great distress from the sudden invasion of the farmer and his wife by what seemed to be a typhus poison; which proved fatal to them both within two days. The wife first fell ill, and was moribund when I saw her, with both her lower extremities cold and livid as high as the knees. Her husband had then, also, been seized a few hours, and was almost pulseless, with petechiæ in various parts of the body, insatiable thirst, parched tongue, and other febrile phenomena. There were neither the symptoms of cholera, nor those of poisoning, nor could they be traced to deleterious vegetable or animal food. Every attempt to sustain the sinking powers, in both these cases, proved wholly nugatory.

Instructed, however, by another class of important facts, we shall not blindly take for granted the absence of cerebral engorgement or arachnitis; but, admonished by the proved occurrence both of stray cases of cerebral lesion in epidemics characterized mainly by disturbance in other organs, as well as by the occasional predominance of brain affection in certain epidemics, we shall be on the look out for the possible

occurrence of such lesion, and give every case of equivocal aspect the benefit of a most rigid analysis from time to time. M. Rostan's conjecture too is worth considering, who suggests the possibility that inflammation of the brain and its envelopes may be induced by a special cause, as by animal matters in a state of putrefaction. We must note the tone and character both of the epidemic we have to deal with, and of contemporary diseases. We must bear in mind the importance of an early and anticipatory treatment, should cerebral lesion be actually pending. It is remarked by Dr. Graves, in reference to a case of intensely violent maculated fever, which, on account of head symptoms, had been leeched early, and the whole scalp blistered on the *fifth* day, and blistered again as well as the nape on the *eighth* day, that "*on the ninth day* the cerebral symptoms, *which we had been endeavouring to anticipate*, came on, but probably our treatment prevented them from being fatal; for when they appeared, the application of tartar emetic ointment induced a purulent discharge from the whole surface of the twice-blistered scalp, in the course of a few hours, and three grains of tartar emetic, given in divided doses that day, procured a complete cessation of the symptoms, after"—mark, after—"*the pupils had been dilated, and one fit of slight paralysis of the mouth and tongue had taken place.*"[1] It would be foreign to my purpose, and superfluous, to sketch all the symptoms of menaced cerebral lesion; I may notice, however, one on which Dr. Graves lays great stress. "On the morning of the eighth day", he says, in reference to a certain case, "we observed that every now and then he *respired irregularly*, as if repeatedly and gently sighing,—a variety of respiration often indicating a disturbance of the nervous system, and which I have repeatedly observed as a precursor of cerebral excitement, and to which, consequently, I have been in the habit of drawing the attention of my pupils, under the name of *cerebral respiration.*"[2] A most interesting case of the sudden supervention of the cerebral inflammation occurred to my observation in the Infirmary about three years ago, in the person of a sailor, who had gone on favourably up to that time. I had not seen him on the day when he was attacked with head symptoms. I was told, when I visited him the following morning, that on the day before, towards evening, he had become suddenly maniacal, and I found him manacled and strapped down to the bed. He had a sharp, rapid, and resisting pulse, a flushed countenance, a flashing eye with contracted pupil,—all the symptoms, in short, of arachnitis. I immediately took from his arm twelve ounces of blood, which was sizy, and put him under the full influence of tartar emetic. The bad symptoms were at once arrested, and he was convalescent in a few days. But the real difficulty lies, after all, in discriminating between the symptoms of merely sympathetic and actually organic disturbance of the innervation. No one can rise from the perusal of Andral, without a deeper impression on his mind of this important practical truth.

Postscript. Since the above remarks were written, the following interesting case of fever has occurred in my own family; and though not of a typhoid, but of a *remittent* type, its affinities to the subject of the previous inquiry are sufficiently obvious to warrant its insertion

[1] Graves. Clinical Medicine, p. 100. [2] Ibid. p. 88.

here. The case was so severe as fairly to justify the epithet of *malignant* remittent fever.

Case. Henry Sandwith, æt. 23, well-built and muscular, but having an irritable brain from night-work in study at an early age, in a large public school, has lately been again working hard, and encroaching upon the hours of sleep, in preparing for his degree at Cambridge. He has suffered from great and depressing anxiety on the subject.

Dec. 5, 1850. The attack of fever commenced to-day with constant shivering and aching in the joints. He took two grains of calomel and a black draught on his own responsibility. Unfortunately he had a small wine-party at his rooms this evening, but drank only two glasses of wine. The excitement of the evening was followed by a most restless night, crowded with strange and multitudinous dreams.

Dec. 6. He was still worse, and unable to look at a book. Diaphoretic medicines were given him, but they failed to act on the skin; the pulse that evening rose as high as 130.

Every night, from Dec. 5th to the 9th, his sleep was disturbed, unrefreshing, and filled with dreams. There was loss of appetite, with a white and parched tongue. He took a small basin of mutton broth each day.

Dec. 9. Wrote home, that he was a good deal prostrated, and could not read or do anything, but lay wrapped up on the sofa. The shiverings had much declined, but fever continued. Tea and toast turned the stomach immediately; broth alone remained. The tongue, to his own sense, was as parched and the taste as metallic as possible. He had felt unequal to write home on the 8th, though deeply sensible he ought to do so.

Dec. 10. Returned home to Hull by railway from Cambridge, a distance of 160 miles. He almost fainted on his journey. A fellow-passenger gave him a little brandy; he also ate an orange. That night he was restless, feverish, and his bowels were a little disturbed.

Dec. 11. Complained of a slight pain on the left side of the abdomen, near the sigmoid flexure of the colon, which was not, however, increased on pressure. The abdomen generally was soft, and gave no indication of pain on pressure anywhere. There was no distension.

Dec. 12. Had hæmorrhage from the bowels to the amount of about ten ounces at 2 o'clock P.M. He had been purged thrice in the night, the products of which an ill-informed nurse had removed. There is reason to fear that blood had been evacuated. A large blister was applied over the abdomen; and half-drachm doses of spirits of turpentine and castor oil were promptly given every third hour. There was hæmorrhage twice more, but not to any amount, not more than three or four ounces in all. This was succeeded by several copious, watery, pale-yellow stools, with tenesmus. The simple aromatic chalk julep, to the extent of thirty grains, with a grain of opium and Venice soap, as a suppository, quieted the commotion. That evening his pulse dropped considerably, the skin for the first time gave way, and he had free perspiration, and slept well the whole night.

Dec. 13. Tongue still furred and white, though breaking up a little; thirst extreme; all the symptoms in short marking great erethism in the gastro-intestinal mucous membrane. There was now a marked exacerbation of fever twice daily, with slight chilliness, suc-

ceeding fever, and eventual perspiration. Towards evening this day he got out of bed under feverish excitement, though he was not maniacal. He left his bed under an impression that he should die the next day, and wished once more to walk across the room. He passed a sleepless night, with great heat and thirst, and laboured under deep and settled melancholy.

Dec. 15. There was hæmorrhage from the bowels at 4 o'clock A.M. to upwards of a pint; and again at 11 A.M. to nearly the same amount. Great faintness came on after the first loss, requiring a little brandy and sal volatile in water. We immediately gave him three grains of acetate of lead with one-sixth of a grain of opium, followed by three grains more of the lead an hour afterwards, and then successively two-grain doses every second hour, until a scruple had been taken. The intervals were then prolonged to four hours during the consumption of ten grains more, making in all thirty grains, when, as all hæmorrhage had ceased, the medicine was suspended. After each of the hæmorrhages, we also threw up the most powerful astringent injections. Sixteen grains of pure tannin dissolved in twelve ounces of warm water, were administered as a cold enema twice; then a solution of matico; and lastly two injections with a drachm of tincture of sesquichloride of iron in ten ounces of water. By these measures in combination the hæmorrhage was happily arrested.

To meet the tendency to collapse, a table-spoonful of old port wine in gruel, alternated with beef tea, every hour and a half, was steadily administered, also a little hock and water to quench the thirst. Two grains of sulphate of quinine, with five minims of elixir of vitriol, dissolved in water, and a drachm of Huxham's tincture of bark, every fourth hour, were substituted for the acetate of lead.

Dec. 18. There having been no evacuation of any kind since the 15th, the bowels were relieved by two-drachm doses of castor-oil and half a drachm of spirit of turpentine once in six hours, until it answered. During this and the following day seven pitchy melæna stools were passed.

Dec. 21. After a day's inaction of the bowels, a tea-spoonful of castor-oil was given, and bilious evacuations followed.

Dec. 23 *and* 25. The bowels were relieved by the same small dose of castor-oil, and healthy stools procured. Symptoms of indigestion arose on the 24th, and were yet worse on the 25th, owing perhaps to a rather too generous diet.

The pulse ranged between 100 and 120 (rising even to 130) during the first seven days. But it fell considerably after the first hæmorrhage, and was down at about 90 after the large loss of blood. The tongue also rapidly cleaned, and the thirst gradually subsided. The stomach maintained itself remarkably well until about the 24th. The urine was unusually dark-coloured throughout the whole course of the fever.

From the period of the first hæmorrhage, the patient was seized with the predominant idea of impending death. This feeling was unusually strong on the day preceding the larger hæmorrhages, namely, on Dec. 14th. Yet up to the period of his convalescence, he was not aware that he had ever passed blood by stool. But it should be here mentioned, that on Dec. 15th, slight epistaxis took place, and that he expectorated sputa streaked with blood several times and for several

days. By using red pocket-handkerchiefs, he was kept in ignorance of this fact also. There was bronchial cough for many days.

The patient complained several times of pain about the region of the liver, but having its seat probably in the ascending colon. This was relieved by sinapisms and ammoniated liniment.

There was much throbbing of the head throughout the whole period of the disease. This symptom was much relieved, and sleep induced, by cold spirituous lotions to the forehead.

The value of the acetate of lead was shewn in the sanguineous exudation as clearly as Dr. Graves has proved its power in the diarrhœa of Asiatic cholera.

Remarks. This case is one of much interest; not merely from its severity and the patient's recovery from extreme peril to life, but also as shewing the influence of moral and physical causes on life and organisation. It is matter of observation, that lesion of Peyer's glands is not confined to typhoid fevers, but has been found also in *remittent* fever, sometimes in conjunction with lesion of Brunner's glands in the duodenum. But there is reason to conclude, that such was not the complication in this instance, but that the hæmorrhage resulted from atonic exudation from the capillaries of the mucous membrane of the colon. The hæmorrhage occurred too early in the disease to render ulceration of Peyer's glands probable, although in the malignant form of the disease, in hot seasons and climates, that lesion has occasionally been recognised at even an earlier period. This view is countenanced by all the symptoms of pain and irritation, though never considerable, being confined to the course of the large intestine; and also because both the nasal and bronchial membranes, with their slighter sanguineous discharges, shew that some general cause was at work, seriously damaging the nutrition of the tissues. And here we must invoke not only the miasm of terrestrial or marshy emanations, but also the enervating influence of anxiety and intense application of the mind, to account for the degeneracy of the tissues and the dyscrasy of the blood.[1] An epidemic influence seemed also prevalent in Cambridge at that time, which would further depress the powers of life. Several students suffered from fever, and a friend of my son's, in the same college, died of it. I have also ascertained, that one of the first symptoms which, in his case, created uneasiness, was *hæmorrhage from the nose and lungs*, although it was not to any great extent, and did not continue long.

My son's case was undoubtedly one of low congestive remittent fever; and, looking at the depressing causes at work, it very nearly resembled in its hæmorrhagic tendencies continued fever with putrid symptoms, the hæmorrhage of which, says Dr. Watson, "is strictly of the passive kind, and a symptom of the worst omen."[2] Additional light is thrown upon it by the results of grave surgical injuries, in the shock they give to the nervous system, and through it in their power to disorganize the mass of blood, so that, as Mr. James well argues, "a change ensues

[1] Andral, vol. i, p. 339.

[2] Med. Gaz., vol. x, p. 472. Dr. Roupell insists on two forms of hæmorrhage from the bowels in typhus fever; the one occurring early in the disease, and resulting from increased activity of the vessels; the other in the later stages of the disease, as large passive bleedings. He illustrates the distinction by the two forms of purpura hæmorrhagica. *Roupell on Typhus.*

in every part of the body; and the previously healthy man is converted into a mass of disease."[1]

Dr. John Rose Cormack, in his able treatise already referred to, on the "*Natural History, Pathology, and Treatment of the Epidemic Fever prevailing in Edinburgh and other Towns in* 1843," furnishes a most striking parallelism between the capital features of my son's case, and those which characterized what he calls "the highly congestive form." In the hæmorrhagic tendency, especially, the similitude obtains. Thus, in one of Dr. Cormack's cases, there were epistaxis and black vomit during life, and after death the scalpel revealed the gastro-intestinal mucous membrane here and there dark-coloured, with sub-mucous exudation of blood in patches, and black matter in considerable quantity throughout the entire alimentary canal; in another, hæmorrhage from the vagina; in another, epistaxis and purple spots; in another, black altered blood issuing from the rectum; in another, purpura, and hæmorrhage from the lungs; in another, epistaxis during life, and after death were found softened heart, and dark-coloured gastro-intestinal mucous membrane, with black patches, and sub-mucous exudation of blood; and, in another, hæmorrhage from the rectum during life, while the scalpel revealed considerable effusion of blood under the endocardium of the left ventricle, and vascularity of the gastro-intestinal membrane, with sub-mucous exudation of blood. These post-mortem appearances of the alimentary canal Dr. Cormack interprets otherwise than as evidences of violent inflammation. "In the yellow cases of the fever", he remarks, "now prevailing in Edinburgh, this same altered state of the gastro-intestinal mucous membrane is found; but there is *no lymph effused; nothing, in fact, indicative of inflammation*, unless in some severe cases, which linger long; in such I have seen inflammation around effused clots of blood, which seemed to have been the cause of this, just as any other foreign body might act". (p. 92.) His pathology of the disease recognises, in the earliest stage, "a dissolved state of the blood, and a want of tone in the capillary vessels"; and in the subsequent stages of the disorder, "when the vital fluid is still more dissolved, its increased ability to circulate in the capillaries from the enlarged calibre or relaxed state of these vessels". "Another class of symptoms", says he, "produced by this capillary congestion, is hæmorrhage from the mucous membranes, with occasional black vomit". That the blood is "really in a dissolved state", he infers "from its imperfect coagulation when first drawn by phlebotomy, from the ecchymosis surrounding flea-bites, and other slight injuries of the skin, from the frequent occurrence of purpurous spots, from the hæmorrhages, and from the discoveries by the microscope." (p. 113.)

We were threatened, as a *sequela* of the fever, in my son's case, with serious inflammation of the fascia and periosteum in the upper part of the left leg, during the second week of convalescence; but it was arrested in the adhesive stage by twice applying a few leeches.

Throughout this anxious case I was much aided by my friend Mr. Edward Wallis, whose kindness, ability, and enlightened views of pathology, were a great relief to me in the most trying moments.

Hull, January 1851.

[1] Trans. of the Provincial Med. and Surg. Association, vol. xvii, p. 57.

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Mikroscopische Anatomie, oder Gewebelehre des Menschen. Von Dr. A. Koelliker, Professor der Anatomie und Physiologie in Würzburg. Zweiter Band: Specielle Gewebelehre. Erste Hälfte: von der Haut, den Muskeln, Knochen, und Nerven. Mit 168 Holzschnitten und 4 lithographirten Tafeln. pp. 554. Leipzig: 1850.

[The Microscopic Anatomy or Histology of Man. By Dr. A. Koelliker, Professor of Anatomy and Physiology in Würzburg. First Half of the Second Volume. Woodcuts and Lithographs. Leipzig: 1850.]

The high reputation which Professor Koelliker enjoys as a histologist is amply maintained in the excellent work, of which the first part that has appeared is now before us. The author has been led, doubtless for some good reason, to postpone the publication of the first volume, which is to treat of the elementary tissues. When the work is completed, it will form a perfect encyclopædia of histology, which it will long be difficult to equal or surpass.

The first half of the second volume is divided into four books, containing an elaborate description of the General Anatomy of the Skin and its Appendages, the Muscles, Bones, and Nerves. The structure and development are detailed; and some physiological observations are also added.

The First Book contains a description of the Skin and its Appendages. The cutis is described as consisting of subcutaneous cellular tissue and corium, and containing, in certain parts, muscular fibres, as well as adipose tissue, blood-vessels, and nerves; and the epidermis, as consisting of the *rete Malpighi* and the horny layer.

Professor Kölliker states that he has discovered the existence of muscular fibres in the cutaneous texture, to a much greater extent than is usually described. Todd and Bowman, and Valentin, have mentioned their presence in the dartos; but the author finds them also in the subcutaneous areolar tissue of the penis and perinæum, in the nipple and the areola, and in the hair-follicles and cutis proper in all parts covered with hair. In the dartos and integument of the penis, they are in the form of bundles, loosely surrounded by the areolar tissue. The bundles present longitudinal stripes, and a finely granular appearance, with a great number of very long and narrow, often slightly tortuous nuclei, from about the 11-1000th to the 13-1000th of a line (132-1000th to 156-1000th of an inch) in length; there is also a small admixture of nucleated areolar tissue surrounding them like a sheath; and, very rarely, there are tortuous nuclear fibres within the bundles. These bundles are most large and numerous in the dartos, where they measure from 1-36th to 1-24th of an inch in length, and smallest and least numerous in the perinæum and prepuce. They form a network, which is so thick in the dartos as to constitute a true muscular membrane.

"In the areola and nipple, the non-striated muscular fibre is regularly found, especially in the female sex. The bundles are of the same nature as those in the dartos; but they have no sheath of areolar tissue, nor intermixed nuclear fibres. In the areola, they are arranged circularly in a tender layer, becoming stronger as it approaches the base of the nipple; their breadth reaches to 1-36th of an inch; from this, and their reddish-yellow colour, they are easily perceived by the naked eye. In the nipple itself, they are partly circular, partly longitudinal, and are united into a thick network, through the meshes of which the excretory ducts of the mammary gland appear. The chief part of these muscles lies in the cutis, and forms a good portion of its deeper layer; but a smaller part, especially in the areola,

[1] Published in London by Williams and Norgate, Henrietta Street, Covent Garden; to whom we are often indebted for great facilities in obtaining the latest German works on medicine.

is also seated in the subcutaneous areolar tissue." (p. 14.) This discovery is highly interesting. In his work on *Parturition and the Principles and Practice of Obstetrics*, Dr. Tyler Smith has, reasoning from the discovery by Professor Owen of muscles connected with the nipple in the monotremata and marsupiata, expressed his belief that lactatory sphincters are present in the human mammary gland. If Professor Kölliker's description be found correct by competent observers, there will be supplied what was wanting to prove the truth of Dr. Smith's conjecture. Do these muscular fibres undergo hypertrophy during gestation and lactation? Reasoning from analogy, we should be inclined to answer in the affirmative; in the meantime, however, we can only suggest it as an interesting subject for investigation.

In the hair-follicles, Dr. Kölliker believes muscular fibres to be present in all hairy parts; he has found them on the arm, on the chest in both sexes, in the anal region, in the mons veneris, in the labia minora, the hypogastrium, the thigh and leg; while they are absent from the palm and sole, and other hairless parts.

At pages 42 and 43, we find the following remarks on the elasticity and contractility of the skin: "There has not hitherto been a sufficient distinction drawn between contractility and elasticity. It is not contractility, but elasticity, that explains the gaping of wounds, the retraction of the skin in amputations, etc. On a vital power of contraction depend the wrinkling of the integument of the scrotum and penis, the erection of the nipple, and the formation of the so-called cutis anserina. . . . In erection of the nipple, the areola is narrowed by the contraction of its circular fibres, and the nipple itself is, apparently quite passively, pushed forward. . . . The *cutis anserina*, which consists in an entirely local contraction of the parts of the skin surrounding the hair-follicles, so that the openings of the follicles project in a conical form, is easily explained by the small bundles of unstriped muscular fibre, which I have found to be placed at the side of all the follicles. They pass obliquely from the upper part of the cutis down to the follicle, and, when they act, push forward the latter and retract the former.

"The contraction of these muscles is excited by cold (as in the scrotum, the areola, and in the hair-follicles); or through mental affections, as fright, terror (as in *cutis anserina*); from irritation of the incident nerves of the reflex system (as in the scrotum, and in *cutis anserina*); or through mechanical influences (as in the areola); hence it seems, in part at least, under the influence of the nervous system. The electric stimulus also is effective; in living men, strong local *cutis anserina* and erection of the nipple can be thus produced."

Passing over the sections on the Nails, we find an excellent account of the general anatomy, growth, and development of the Human Hair; from which we extract the author's account of the observations which he has made on the

Changes which the Hair undergoes after Birth. "The process and nature of the change which hairs undergo after birth has hitherto been very imperfectly known. Valentin and Henle, with others, have indeed stated that the lanugo partly falls from the head, and is replaced by new hair; but any more accurate information as to the *when* and *how* of this process has been entirely wanting. I have discovered that, at least in many cases, there is an *entire shedding of the hair* after birth, and that *new hairs grow in the follicles of the primitive hairs, which they gradually push out*, in the same manner as has been found by Heusinger and Kohlräusch to take place in the shedding of hair in animals. The first observations, which led me to the knowledge of what occurs in the shedding of the human hair, were made on the lanugo of a new-born child.

"The hairs here (Fig. 1, 37 in original) all presented a peculiar structure at their lower end. The simple club-shaped or roundish enlargement was not found here as formerly; but from the bulb, which was quite conspicuous, there projected a longer cylindrical process, either somewhat to one side or directly downwards, which at first possessed at one end a depression for

lodging the papilla. Secondly, the hair did not extend in the continuation of the bulb, but terminated in the bulb itself, and was in a peculiar manner very sharply defined by a somewhat thicker little bulb, indented at the edges, and dark like the hair itself. Thirdly, the interior sheath of the root was but just present, or not at all, while the exterior sheath appeared perfectly developed, surrounded the little bulb, formed the proper bulb, and was connected directly with the process above described. The latter, which measured from 45-1000ths to 1-10th of a line, was just of the same structure as the external root-sheath, consisting throughout of small, roundish, nucleated cells without pigment; and it could, from this agreement in structure and from its well-defined connexion with the external root-sheath, be considered as proceeding from the latter. The hairs themselves presented at their lowest part no traces of still tender and roundish cells, such as usually appear, but consisted throughout of hardened elements, like those in the shaft." (pp. 141-42.)

Fig. 1.
(37 in original.)[1]

Professor Kölliker observed these appearances even before the end of fœtal life; but was only able to determine their signification from examining the hairs of a child nearly a year old, where he found evident proof that the extension of the hair-bulb or of the external root-sheath was only preliminary to the formation of new hairs in the follicles of the old ones. The following is his description of the series of changes which take place.

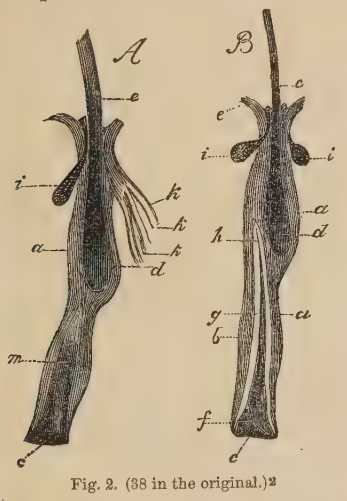


Fig. 2. (38 in the original.)[2]

"If the parts at the base of one of the roots with processes, already described (Fig. 37), be examined, the processes will be observed to become longer and thicker, and to present a separation of the outer and inner cells, like that which has been described as taking place in the planting of the lanugo in the processes of the Malpighian layer of the skin. While the outer cells of the processes remain round, and colourless, the inner ones begin to develope pigment, and to become elongated; and they group themselves together distinctly as a conical mass, with the point directed upwards.

[1] Eyelash from a child a year old, with a process 12-100ths of a line in length from the bulb, or rather from the external root-sheath, and presenting a depression for the papilla. Magnified twenty diameters. *a*. External root-sheath; *c*. Depression for receiving the papilla; *d*. Bulb of the hair; *e*. Its shaft; *e* (on left hand). Transition from the external root-sheath to the Malpighian layer of the epidermis; *i*. Sebaceous glands drawn out with the hair.

[2] Eyelashes from a child, magnified twenty diameters. *A*. Represents a process from the bulb or external root-sheath, 25-100ths of a line in length, with the central cells (*m*) arranged longitudinally, and separated from the external one, forming a distinct cone. *B*. An eyelash in the process of which, 3-10ths of a line in length, the internal cone has become developed into a hair and its internal root-sheath. The old hair is pushed farther out; and, as in *A* and in fig. 37, is destitute of an internal root-sheath. *a*, *c*, *d*, *e*, *i*, as in fig. 37; *b*. Internal root-sheath of the young hair; *f*. Bulb; *g*. Shaft; *h*. Apex of the young hair; *k*. Three perspiratory ducts, opening in *A* into the upper part of the follicle.

At first (Fig. 2*A*, 38*A* of original), this central mass is quite weak, and, like the cellular layers surrounding it externally, easily soluble in soda; but, at a later period, when, like the process which contains it, it has become longer, its elements become harder, and are divided into two parts; a darker inner one, containing pigment, and an outer clear portion. These are nothing else than a young hair, with its sheath (Fig. 2*B*, 38*B* in original); and thus the meaning of the mysterious processes from the hair-bulbs is rendered evident."

"The subsequent development of the *two hairs*, present in the same sheath, is easy to follow. The principal circumstance is, that while, on the one hand, the young hair with its sheaths continues to grow and lengthen, on the other hand, the old hair, which has ceased to grow, is gradually pushed out. A comparison of Figs. 38*B* and 39 will render these processes more easily comprehensible than any description. In Fig. 38*B* the second hair is observed with its apex not yet projecting beyond the internal root-sheath, and surrounded by a moderately long external sheath, while the primary hair still occupies a considerable portion of the follicle. In Fig. 39, *A* represents the young hair, with its point at the opening of the old follicle; the root-sheaths have become lengthened, and the under one has grown upwards with the bulb of the dead hair, which is pushed further out. In Fig. 39, *B*, the young hair has entirely emerged, and appears at the same opening with the old hair, now pushed still farther up. Its internal root-sheath is still more lengthened, and reaches as high as the insertion of the sebaceous and perspiratory glands, which latter open very frequently —sometimes as many as three—into the upper part of the follicle of the eyelids. After this, the old hair soon falls out, while the young hair increases in size and strength, and fills the space left by the old one." (pp. 141-5.)

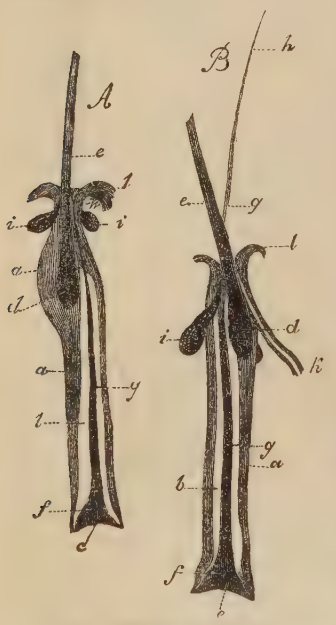


Fig. 3. (39 in the original.)[1]

This description, as yet, applied only to the eyelashes. In the head, and other parts of the body of the same child, the author found only a single hair; but it presented the process of the bulb. He believes it probable that a similar change takes place here also, but cannot decide how soon it occurs; and says that further observations are necessary on this point.

The Sudoriferous Glands mostly consist of single coiled canals; but Dr. Kölliker has found that, in the axilla, the tube generally bifurcates many times into branches, which again divide, and sometimes, but rarely, form anastomoses; they end in blind sacs, after having frequently given some off. The canals are described as thick-walled, and thin-walled. The former possess only an external nucleated fibrous membrane and an epithelium; the latter has within the fibrous sheath a layer of pale muscular fibres, on which the epithelium immediately lies. The secretion of the sweat-glands is said by the author to be not the same in all cases. In most parts of the body, it

[1] Two eyelashes from a child a year old, each containing an old and a growing young hair. Magnified twenty diameters. The references are the same as in the preceding figures.

is a clear fluid ; but in the axilla, he has found it either as a greyish transparent slightly fluid substance, apparently consisting of nothing but fine granules and numerous nuclei, or as a yellowish white, tolerably tenacious mass, containing, in variable quantity, large numbers of large, dark, colourless, or yellow granules, nuclei, and cells. The subject of the secretion of the sweat-glands, especially those of the axilla, is acknowledged by the author to require further chemical and microscopical investigation. It will be conceded, on a perusal of his account, to which we must refer our readers, that he has contributed a fair share towards clearing the obscurity.

The Ceruminous and the Sebaceous Glands are next treated of. The author considers that his observations on the development of the latter will be interesting with regard to the question of the formation of glands. They appear during the formation of the hair, as masses of cells continuous with the external root-sheath, and covered by an extension of the follicle. The interior cells begin to form fat-corpuscles ; at first these are entirely isolated, but at length they proceed in the axis of the projection as far as the external root-sheath, and an opening is formed into the hair-follicle. The process, in its various stages, will be better understood by a reference to Figs. 36 and 51 of the original work, which beautifully represent the sebaceous glands being gradually developed as diverticula from the hair-follicles.

With the description of these glands, the author concludes the first book.

The Second Book is devoted to a highly elaborate description of the Striated Muscular Tissue. The opinions of Bowman, Henle, Valentin, etc., on the minute structure of this tissue, are commented on, according as they have been confirmed, or negatived by the author's own investigations.

Anastomoses of Muscular Fibres. It has hitherto been generally believed, that the muscular fibres run in a direct course, without dividing or anastomosing. But in 1849, Professor Kölliker described anastomoses in the auricle of the frog's heart. Two primitive bundles were here and there united by a transverse bundle ; not by mere apposition, but by a division of the sarcolemma into three separate tubes. Leydig and Hessling have made the same discovery in the invertebrate animals.

The author has since found, that anastomoses of the muscular fibres had been already described and figured by Leeuwenhoeck, as taking place in the heart of the duck, ox, and cod ; but histologists subsequently have taken no notice of the occurrence of this fact, with the exception of Frei and Leuckart, and Wagner, who have referred to it as occurring in some of the invertebrata ; and it has been more recently and carefully observed in the butterfly by Hessling, and in the *piscicola* and *clepsine* by Leydig. Professor Kölliker and Dr. Corti have found "that anastomoses of the striated muscular fibres evidently occur in the hearts of all vertebrate animals. They are seen in man, in the rabbit, calf, dog, cat, heron, frog, and, according to Dr. Leydig, in the chub. In man, and mammalia, they are very numerous and elegant, and are formed by very short transverse or oblique branches, usually slender, passing between parallel bundles. In the larynx, œsophagus, pharynx, and tongue of the

Fig. 4. (58 in original.)[1]

[1] Ramified primitive bundle, 18-1000ths of a line in diameter, from the tongue of a frog. Magnified 350 diameters.

rabbit, they could not be seen; in the tongue of the frog, immediately under the mucous membrane, there were numerous ramifications of the muscular fibres, but no anastomoses. . . . . In the muscles of the trunk and limbs of man and mammalia, I have seen no trace of anastomoses of the bundles; but it seemed to me as if certain fibres, here and there, were divided into two or more portions, before and at their insertion into the tendons; and I have certainly seen this in the tail of the tadpole." (p. 210.)

The manner in which the UNION OF MUSCLES WITH TENDONS is effected is as yet imperfectly known. Professor Kölliker has made this a subject of investigation; and we shall give an abstract of the results at which he has arrived.

Muscles and tendons are, in some cases, in a direct line; in others, the muscular fibres end at acute angles to the borders or surface of a tendon or aponeurosis, as in the penniform and semi-penniform muscles. The microscopic arrangement is distinct in each of these two cases. In the first, there is no abrupt limit between the muscular and the tendinous fibres; this may be well observed in the intercostal muscles of man. The author has, however, been unable to determine, with complete accuracy, the intimate relations of the structures to each other. He is certain that the sarcolemma does not form a closed sac, but passes without dividing into the tendon; but as to what becomes of it, whether it becomes continuous with the most superficial tendinous fibres, or ends in any other way, he cannot decide, though he is in favour of the view that it ends in the external part of the tendinous bundle. In the interior, the tendinous fibre appears to meet the muscular fibre in the form of a compact bundle; but, with regard to the arrangement of the fibrils, all that the author has been able to make out is, that the transverse striæ become less distinct as the muscular fibre approaches the tendon, while, at the same time, the primitive bundles (fibres) undergo a sort of splitting, as is seen by more or less distinct longitudinal streaks. The transition from muscle to tendon does not generally occur at the same height, and therefore cannot be accurately defined by a straight line.

In the second form of connexion, the fibres end abruptly in cones, more rarely in sharp points, and are set at more or less acute angles on the borders and surfaces of the tendons and aponeuroses. In this case, although there is not a direct continuity of tissue, yet the union is very firm. Professor Kölliker finds "that the ends of the muscular fibres are received into little depressions on the surface of the tendons, while at the same time the areolar tissue between them *(perimysium internum)* becomes continuous with that of the surface of the tendon." These appearances are best seen in muscle which has been kept in spirit, or boiled. With regard to the manner in which the sarcolemma ends, the author states it difficult to determine; but he has sometimes succeeded in distinctly seeing its blind terminations.

We must pass over the remaining subjects treated of under the head of Muscular Tissue, merely observing, that the author gives evidence throughout of his having carefully investigated every point on which he offers any remarks. The observations on the disposition of the fibrils during muscular contraction are especially worthy of being perused with attention.

The Third Book is devoted to a description of Bone; under which head are also included the Cartilages and other structures entering into the formation of Joints. We can merely quote from it the author's account of his investigation on the Nerves of Bone, to which subject he has paid considerable attention.

"NERVES OF THE OSSEOUS SYSTEM. The periosteum is rich in nerves, of which, however, the greater part belongs to the bones. The number of nerves proper to the periosteum itself is tolerably scanty, and Pappenheim seems right in entirely denying their presence in certain parts; at least I have not been able to find any in the inner surface of the vertebral arches, on the neck of the femur, or beneath certain muscles, as the glutæus minimus and peronæi.

Yet there are probably no bones, on certain parts of which they are not found, for I have seen true periosteal nerves on all the large tubular bones, on the flat bones of the skull, on the jaws (especially the alveoli), on the scapula and ilium, on the bodies of the vertebræ, and on the metatarsus. The nerves are in the same layer as the vessels ; they sometimes accompany the larger twigs, sometimes are alone ; and arise, in part at least, from the larger nerves of the bones. Though few in number, and with few ramifications and anastomoses, they evidently spread over a large extent of surface. The primitive fibres measure from 2-1000ths to 4-1000ths of a line ; but, partly through true division, as I have quite distinctly seen in the periosteum of the infraspinous and iliac fossæ in man, and as Czermak has observed in the frontal bone of the dog, and partly by gradual decrease, they reach the size of 12-10,000ths to 16-10,000ths of a line. How these nerves end, I cannot say with certainty. I have seen nothing of loops ; in two cases I thought I saw free endings in points, yet I cannot affirm certainly that they really were such. About many of the joints, as the elbow, knee, and knuckles, I have seen the nerves more abundant than in other parts, ramifying and anastomosing very freely in the vascular areolar tissue above the proper periosteum, and chiefly following the course of the vessels ; yet I could not see here the divisions and terminations of the primitive fibres.

"The nerves have not the same arrangement in all bones. First, in the larger long bones, one or two tolerably large twigs, according to the number of nutritive foramina, pass directly into the medullary canal, where they spread out, following the course of the vessels as far as the apophysis, but not always lying on them ; they ramify abundantly, but, at least as I have seen, form only a few anastomoses. Secondly, all these bones, as I find in opposition to Engel, possess also numerous fine nerves in the apophyses, which pass with the blood-vessels, here very numerous, directly into the spongy substance, and ramify in its marrow. Thirdly, very tender filaments penetrate with the fine arteries into the compact substance of the diaphyses, and here doubtless spread out, although I have not yet been able to trace their course in the firm substance. The arrangement is the same in the smaller long bones in the hand and foot ; only the division into apophysal and diaphysal nerves is not so regular.

"Among the short bones, I found the vertebræ extremely rich in nerves, especially the bodies. They penetrate from behind, in company with the arteries and the basivertebral veins, as well as from the front and sides, and spread out in the medulla of the spongy substance. I saw one or more nervous filaments. I have not yet examined the bones of the carpus, but do not doubt that they also possess nerves.

"In the scapula and ilium, the nerves are very numerous, and penetrate with the larger vessels, partly on the surface, partly in the region of the articular cavities. In the sternum, and flat cranial bones also, the observation of the nerves is difficult. In new-born children, I have seen nerves in the parietal and occipital bones ; and in adults, the parietal and occipital bones are, although sparingly, provided with microscopic filaments, which here and there pass from without, along the small arteries, into the compact substance, and apparently penetrate into the diploë. . . . How the nerves of the bones end, I have not seen ; but this will readily be comprehended by those who know the difficulty of following them in the spongy substance, or the marrow. In two places, I have seen Pacinian corpuscles on the nerves before their entrance into the bones ; on the diaphysal nerve of the tibia before its entrance into the nutritive foramen, and two others on the largest nerve of the metatarsal bone of the great toe, likewise in the neighbourhood of its point of entrance." (pp. 337-340.)

The whole of Dr. Kölliker's remarks on bone, and its accessory structures, are elaborate ; but we have not space for any further quotations from this part of the work.

The Fourth Book treats of the Nervous System. It commences with a

description of the elementary structures—nervous tubules and cells. The arrangement of these elements in the spinal cord, and the origin of the peripheral nerves, are next examined; and some physiological observations are appended. The medulla oblongata, pons Varolii, and cerebellum, are next treated of in a similar manner; and the arrangement of the microscopical elements in various parts of the cerebrum is carefully described. After a notice of the membranes, and an account of the structure of the spinal and cerebral nerves, the book is terminated with the development of the nervous elements. This portion of the work occupies 159 pages; and contains much valuable information on the subject of which it treats; for which, however, we must refer our readers to the work itself.

It now remains for us to say a few words as to the general character of Professor Kölliker's *Mikroscopische Anatomie.* It bears the strongest evidence that the author has spared no pains, either to make himself acquainted with all that has been written on the various subjects of which he treats, or to test the descriptions given by others by his own observations. Hence we find, that the work contains a summary of the views of nearly all those histologists who have made any additions of value to our knowledge of anatomy of the tissues, especially during the last ten, or twelve years. There may be some omissions; but they are certainly very few, and insufficient to detract in the least from the value of the work. The source of every opinion quoted is carefully acknowledged; and frequent bibliographical lists of the authors, who have written on the subjects treated of, are interspersed. Yet the book is far from being a mere compilation. The high reputation which the author enjoys forbids this supposition; and we find evidence throughout that he has examined for himself.

The general plan on which the work is printed is the following. A careful account, divided into sections, is given of the structure and development of each tissue. This part is that which may be read by those who are entering on the study of the various subjects. Every thing is here stated in a clear manner, and to these portions of the work most of the woodcuts—which are excellently calculated to give an idea of the subjects which they represent—are appended. For the use of those who are desirous of becoming more closely acquainted with the literature of the various subjects, a critical abstract is given of the views of previous and contemporary observers, which is printed in a smaller type, so that it may be studied or omitted, according to the inclination and opportunities of the reader.

In conclusion, we can only reiterate our sense of the obligations which all students of histology, both those who are commencing, and those who are more advanced, are under to Professor Kölliker for publishing this work. In Germany it must become the standard work on the subject; nor will the library of any anatomist or histologist be complete without it. We trust that the remaining parts will speedily follow.

On the Crystalline Lens, and Cataract. By Bernard Edward Brodhurst. pp. 243. London: 1850.

There is scarcely any subject which has been more prolific in books than Cataract. At first sight, it might appear difficult to account for this, as the treatment is well understood; and, as to the character of the disease, it generally happens, that what is put forward as new is not true, and that which is true is certainly not new. The explanation, perhaps, is to be found in the fact that such works, in the majority of instances, emanate from gentlemen young in the profession, but who are anxious to make themselves favourably known amongst that extensive and not particularly discriminating class—the public.

After a careful perusal of the work before us, we cannot say that it possesses much claim to originality; though clothed in other language, the

contents are old and familiar friends. Here and there, there is a sprinkling of information from the German schools ; but most decidedly the views given as novel are rather hypothetical than established.

Mr. Brodhurst considers the chief causes of Cataract to be deficient nutrition, and inflammation. Werneck makes a statement which is harder to believe, and if believed, dangerous in practice. He states, that if the intense light produced by the burning of phosphorus in oxygen be concentrated by means of a lens on a Cataract, it may be broken up. He also say, that the retina is not injured. These are statements which appear to us fraught with danger ; for we do not believe that such tricks can be played with the human eye with impunity. We are of opinion, that such a step as that described would set up mischief in the retina, and scarcely fail to produce amaurosis. Dr. Werneck experimented upon animals ; but we need scarcely say, that great caution is requisite in applying reasoning founded thereon to the more sensitive and more highly organized frame of man.

If we understand Mr. Brodhurst correctly, he denies the muscularity of the iris, considering it to be composed of loose cellular tissue and pigment deposit, and defining it as "an irritable membrane without sensation, and its sole function in voluntary motion." Although not identical with the ordinary unstriped muscular fibres, those of the iris have a really close analogy to them ; and the resemblance is strengthened by the fact, that in man, birds, and reptiles, the fibres in all repects are similar to those of the striped muscular fibres ; it is therefore reasonable to suppose, until the contrary can be proved, that the iris is composed of muscular, and not simply cellular tissue.

As regards the disappearance of the Pupillary Membrane, the views of the author are entirely at variance with those entertained by the learned President of the Dublin College of Surgeons. Dr. Jacob supposes it to be absorbed ; Mr. Brodhurst says : "This membrane is not absorbed, as supposed by Dr. Jacob ; but it is ruptured at birth by the action of light upon it ; it is detached from the iris, either wholly or in part, to fall down upon and become adherent to the anterior capsule of the lens ; there it remains, and is never removed." Further evidence will be required, before this view can be accepted. In what way does the author mean that the action of light ruptures it ? Does he mean that the action of the pupil produces the effect ? The mere action of light could not of itself produce such an effect as the tearing of a membrane, unless it excited some expansion or contraction, which immediately acted upon it. The meaning of the author is by no mean clear.

"A mature Cataract", says Mr. Brodhurst, "if allowed to remain *in situ*, is injurious. It may give rise to inflammation, which may unquestionably be propagated to produce cataract in the other eye ; but it is more especially injurious by preventing the passage of light to the retina, by witholding its natural stimulus from the membrane, which, thus long deprived, may never recover its power, or only in part, and that after the lapse of time." (p. 71.)

Although we by no means advocate unnecessary delay in removing a Cataract, we consider that this "unquestionable" fact of Mr. Brodhurst's is very questionable indeed. We have had some experience in these matters, but have never seen anything which led us to believe that a Cataract in a healthy eye gives rise to inflammation which may be propagated to produce Cataract in the other eye. We believe, that where both eyes are affected, it is is simply from the original exciting cause influencing both lenses, and not from any "propagating of inflammation" or anything else, from one eye to the other.

Amongst the exciting causes of Cataract, cold and damp are specified ; and the illustrations are remarkable. An Austrian sea-captain had been in the constant habit, for years, of washing his head each morning with salt-water, and of allowing the hair to dry in the wind whilst he paced the deck of his vessel. Three months previous to his appearance at the Josephinum, his sight had suddenly begun to fail, and he had become rapidly blind with

Lenticular Cataract. Jäger gave it as his opinion, that these repeated ablutions, without subsequent careful drying of the hair, had produced the opacity in question. Subsequently Mr. Brodhurst met, at Rome, with two cases of Cataract, arising under similar circumstances. How far, however, these might have been merely coincidences, or really cause and effect, must remain a question open for further observation to decide, though we apprehend the Byronic mode of dressing the hair, *i.e.*, washing it in cold water, and letting it dry in masses, is far too common to admit of the supposition that it is an exciting cause of Cataract; otherwise the relation between the two would have been long since remarked. We remember once having heard a learned *clinique* given on a certain set of symptoms, described as arising from exhaustion of the system, caused by a superabundance of hair. The symptoms were well marked, the mass of hair was wonderful to behold, the pupils were edified, and the professor satisfied,—when, lo! it was discovered that one slight link in the chain of reasoning was wanting, for though a model in its way, it turned out that the patient wore a wig!

The most interesting portion of Mr. Brodhurst's book is that relating to the practice of the great German oculists Jäger and Rosas. A table is given, by which it appears that, in eighteen years, Jäger has operated on 1011 Cataracts! and of 737 extractions, only thirty-three were unsuccessful; a very remarkable and creditable amount of success. The following is the proportion of unsuccessful cases in the practice of some of the chief foreign oculists.

Jäger	1 in 42	Prochaska	1 in 5
Beer	1 in 9	Roux	1 in 2(!)

Great as is the success of Jäger, we are inclined to think that the practice of the late Mr. Tyrrell was nearly equal during the last years of his life; but Mr. Brodhurst does not make mention of the successful proceedings of his countrymen.

The Surgeon's Vade Mecum. By Robert Druitt, F.R.C.S. Fifth Edition, much improved. pp. 660. London: 1850.

The fact that Mr. Druitt's *Surgeon's Vade Mecum* has reached a fifth edition, is a sufficient proof of the estimation in which it is held by the medical profession. The present work is by no means a mere reprint of former editions, but the author has very judiciously made such alterations as are demanded by the progress of surgical science, though without adding materially to the bulk of the volume. This has been accomplished by expunging some of the explanatory matter, formerly necessary to introduce new facts to the notice of the profession, but now superfluous, as these facts have become current, and their truth generally acknowledged; and by substituting a description of the various improvements which surgery has received during the last three years. The work may be thus considered as offering a very excellent and well-digested abstract of the science and practice of surgery at the present day. There is one feature which distinguishes Mr. Druitt's work from other books of a similar character, namely, that the author draws largely upon the collateral sciences, to add completeness to his subject; and we accordingly find, that while the work is, as it professes to be, a very excellent manual of surgery, it nevertheless displays an intimate acquaintance with the whole field of medicine, and contains a vast mass of information of the greatest utility to practitioners of every branch of the healing art.

As an instance of the care with which the author has collected facts which are sometimes considered of trivial moment, but which are nevertheless most valuable for the practitioner to be acquainted with, we quote the following remarks upon the different kinds of trusses, and the peculiarities by which each is distinguished:—

"There are some cases, in which the common truss fails to keep up a rupture comfortably; and for these the surgeon should be prepared to re-

commend other instruments, which are, for the most part, the property of various individuals, and each of which has some peculiarity, adapting it to particular cases. *Coles's truss* has a spiral spring acting on the pad. The *Moc-Main lever truss* has a simple belt passing round the body, thus dispensing with the usual circular spring; and the pressure on the pad is effected by means of a strap passing under the thigh, and acting on a spring lever attached to the pad. *Salmon and Ody's self-adjusting truss* has a pad revolving on a ball and socket. The *Maidstone truss* allows the pad to slide on the spring, so that the circumference of the instrument may be adapted to the varying size, or movement of the body. *Egg's truss* is said to be made of old sword blades; it is very strong, though not irksome, and requires no fastening. *Adams's graduated pressure truss* has two springs of different curves; by sliding which on one another, the amount of pressure may be varied. In *Tod's truss* the spring goes round the waist, and curves downwards, to compress a pad at the internal abdominal ring. *Newson's wire truss* has a round wire, instead of a flat steel spring, which renders it less likely to be displaced. Trusses may have French pads, which are of an oblong-triangular shape, instead of oval, like the English; or pads filled with air; or may have springs going entirely round the body. But, perhaps, the most ingenious instrument, and that which is likely to be the most useful, is one recently devised by Dr. Arnott; in which, by means of a wire, external to the steel spring, and capable of being tightened or slackened by a nut and screw, the amount of pressure can be regulated with the greatest possible nicety. For children, an *India-rubber band* and pad often answer without a spring. A pad of hard polished wood is recommended by Mr. Dartnell. He also uses flannel, instead of leather, as a covering for the spring, as it can be washed." (p. 470.)

The present edition contains a very well-written chapter upon chloroform, and other means of producing insensibility to pain: and the work concludes with a series of formulæ, which will be found of great value, not only to the student, but to the practitioner engaged in the active duties of the profession.

Observations relating to the Science and Art of Medicine. By William Wegg, M.D. Cantab., Physician to the St. George's and St. James's Dispensary. pp. 233. London: 1851.

After an introduction of thirty-nine pages, upon "Remedies in general", in which the reality of the therapeutic action of medicines is well set forth, the author considers successively, and in detail, the following subjects:—blood-letting, mercury, iodine, antimony, arsenic, iron, colchicum, opium, hydrocyanic acid, stramonium, strychnine, quinine, alimentary canal, and support. Want of space, and the general plan of our Journal, prevent us from giving a critical examination of the many interesting views here presented to our notice; but we have much pleasure in stating, that the work is highly instructive, and proclaims its author to be a sober, sound, and able physician.

Physician's, Surgeon's, and General Practitioner's Visiting List, Diary, Almanack, and Book of Engagements for 1851. Part I for the Library Table; and Part II for the Pocket. London: 1841.

This is the best contrived publication of its class; and does great credit to its editor and publisher. The periodoscope—Dr. Tyler Smith's useful and ingenious instrument—is attached to the inside of the part intended for the pocket.

The Anatomist's Vade Mecum; a System of Human Anatomy. By Erasmus Wilson, F.R.S. Fifth Edition. pp. 656. London: 1851.

We are glad to welcome a new edition of this admirable and beautiful manual, alike adapted to the dissecting-room and the library table.

CRITICAL DIGEST OF THE BRITISH AND FOREIGN MEDICAL JOURNALS.

PRACTICE OF MEDICINE AND PATHOLOGY.

OBSTRUCTION OF THE BOWELS, ARISING FROM A PECULIAR CONFORMATION OF THE SIGMOID FLEXURE OF THE COLON, TERMINATING FATALLY.

Dr. J. A. Easton relates a case of the above description in the *Edinburgh Monthly Journal* for December 1850. The disease under which the patient, a pregnant female, laboured, was supposed to be ileus, and the singular malformation of the colon was not even suspected during life. Active aperients and enemata, administered perseveringly, were employed, necessarily without success; a line of treatment which would not have been persisted in exclusively, had the real nature of the case, which is of comparatively rare occurrence, been apprehended. The most accurate, indeed the only description of this peculiar and rare variation in the course of the colon, which alone Dr. Easton believes to be capable of producing the disease of which this woman died, has been given by Dr. Andrew Buchanan, in the twenty-fourth volume of the *London Medical Gazette*.

The disease may be described as complete obstruction of the bowels, arising from a peculiar, and in most instances congenital formation of the colon, whereby inordinate pressure is exercised on a part of the larger bowel, by a superposed portion of the distended intestine, the result of which is great accumulation of feculent matter, and enormous distension of the belly. The sigmoid flexure, as found after death, in place of passing downwards into the pelvis from the left iliac region, ascended in the mesial line towards the left side, till it reached the region of the spleen, and thence, forming a very acute angle, it descended vertically into the pelvis, having its lower portion, where it runs into the rectum, compressed between the ascending portion of the flexure, distended with gas and fæces, lying before it, and the promontory of the sacrum lying behind it. The disease, caused by this pressure, was more readily induced, and rendered irremediable, by the superadded weight of the gravid uterus. The obstruction in this and similar cases, has been questionably attributed to a twist in the colon, at the lower end of its sigmoid flexure; but in the present instance, this view must be abandoned, simply because no twist existed; the work of impediment having been more effectually performed by a column of nearly solid intestine, pressing heavily on another portion, in contact with the promontory of the sacrum, and the gravid uterus forming the copestone of the whole.

The symptoms of this disease, of a common or general character, are, constipation and dragging pains in the back. The pathognomonic symptoms are the intractable and continuous nature of the constipation, the enormously distended belly, the empty rectum, and the excruciating pain, unaccompanied by fever, or other sign of inflammation. Dr. Easton very ingeniously and candidly observes that these ought to have enabled him to distinguish the disease from all other kinds of tympanitic swelling and constipation. We think, however, that the writer scarcely does justice to himself here; and we have very grave doubts about the facility of making a correct diagnosis in such cases. The fatal result, in Dr. Easton's case, was attributed to the persistent and excruciating pain, for inflammation was not present; and, as Dr. Buchanan has well remarked, "mere obstruction cannot be considered as an adequate cause of death, since persons have been known to live more than a quarter of a year without any alvine evacuations."

Dr. Easton, having no observations of his own to offer regarding the treat-

ment to be pursued in similar cases, avails himself of the remarks of Dr. Buchanan, who, looking on all purgatives, as well as clysters, as utterly useless, except for the purposes of emptying the rectum, observes that the first and great object of treatment should be to remove the mechanical obstacle to the evacuation of the bowels. With this object, he advises that the patient should be placed upon the hands and knees, or standing with the body inclined forward, which has the effect of freeing the end of the colon from the weight of the first turn of the sigma lying over it. He then employs an œsophagus tube, armed with a large sponge, fastened to the end, by means of a string attached to it, and passing through the tube, while, by means of the other half of the string running outside the tube, the sponge can be withdrawn, when we wish to use the tube as an injecting instrument. In the first instance, however, it is to be used as a probe and dilator. On withdrawing the instrument, we shall ascertain if it has passed the obstruction, by observing whether its point be smeared with fæces. If it have passed, we should reintroduce it, and by passing and repassing it through the compressed part, we should endeavour to form a free passage, by making an indentation in the soft feculent mass, lying before it. If this does not succeed in producing a discharge of fæces, the tube should be carried up as far as possible, the sponge withdrawn, and tepid air or water injected, as may be best found to answer the purpose. Should this plan not succeed, Dr. Buchanan advises, rather than leave the patient to his fate, that the bowels should be punctured with a small trocar, not with the view of evacuating the fæces, which could not be prevented from escaping, in part, into the peritoneal cavity, and so causing death; but solely with the object of discharging air from the bowels, which will both relieve the sufferings of the patient, and facilitate the subsequent attempts to evacuate the fæces through the natural passages. The point recommended for puncture is about the middle of the right colon; as that part of the bowel is most uniform in its seat, and is almost entirely distended with air. Operations for the formation of an artificial anus, by opening the colon in the situation here indicated, behind the peritoneum, in ileus and intusceptio, have been performed since Dr. Buchanan wrote. This operation may be added to our remedial resources in cases resembling the one described. Dr. Easton evidently, and we think justly, regards the ingenious treatment of Dr. Buchanan as mainly palliative and provisional.

FÆCAL OBSTRUCTION OF THE BOWELS MISTAKEN FOR OVARIAN DROPSY: EXTENSIVE TUBERCULAR PERITONITIS.

In a series of papers on the Diagnosis of Ovarian Dropsy, Mr. I. B. Brown relates the following case in the *Lancet* for July 13th, 1850.

Case. Miss F., aged 14, born in India, was brought to Mr. Brown on March 22nd, 1849. She had never menstruated; had generally good health, but had always suffered from flatulence and distension of the bowels. Five weeks ago, great languor appeared, with rapid growth, and emaciation about the neck and shoulders. She complained of uneasiness in the left side, and that her dresses were too tight. On March 9th, an obstetric physician was consulted, who considered it a case of ovarian dropsy. He prescribed aperient pills of rhubarb and galbanum, and tincture of muriate of iron, and recommended her to wear a calico belt to support the abdomen. The remedies were persevered in, yet she daily got worse. The pulse became quick, 120; there was hectic flush of face, and increased languor, and the abdominal swelling rapidly increased.

On March 22, Mr. Brown found a tumour in the left iliac fossa, and fluctuation perceptible over the abdomen, below the umbilicus. On more careful examination the next day, he discovered a solid tumour above and just to the right of the umbilicus. She had passed a restless night; skin

hot; pulse 120; tongue red, not coated; dejections very frequent, but slight, of a pale chalky colour; urine very scanty; extreme languor; general tenderness, especially at the point of the hardened tumour. She was ordered three grains of grey powder, and four of Dover's powder, at bed time; and chalk mixture, with decoction of bark and aromatic confection; also to have the abdomen rubbed with a mercurial embrocation on going to bed. On the 24th, the countenance indicated great bodily and mental depression. The medicine was continued; and the recumbent posture was enjoined. On the 25th, she evacuated an enormous quantity of hardened fæces, after which the solid tumour disappeared. Mr. Brown was now certain that there was no ovarian tumour, but that the fluid in the abdomen had arisen from chronic peritonitis. She appeared to improve slightly until the 8th of May, when she was suddenly taken worse, with shivering, sickness, pain in the abdomen, and sickness of pulse. There appeared to be ulceration of the intestines; but she lingered till the 22nd of June, when she died.

Post-mortem Examination, fifteen hours after Death. The whole body was extremely emaciated; there was no protuberance of the abdomen. On opening this cavity, there was a quantity of thick, offensive, purulent matter diffused throughout. The small intestines were rolled up into a compact ball, and so glued together by adhesions, that it was almost impossible to separate them. The whole of their serous surface was covered with tubercular deposit. This mass of intestine was fixed to the upper portion of the abdominal cavity. The lower part of the abdomen was filled with a quantity of highly offensive, dark grey-coloured, semi-liquid matter, being a mixture of pus and fæces. On separating the transverse colon from its strong adhesions, an ulcerated opening, of the size of a sixpence, was found in it, with well defined edges, having a distinct greyish-black rim. On further search, two or three other smaller perforations were detected. Purulent matter was infiltrated throughout the mass of tubercular deposit. The peritoneal coat of the uterus was diseased; the ovaries were of their natural size, and healthy. The liver was healthy, but its peritoneal coat was diseased. The omentum was matted to the intestine by adhesions. The thoracic organs were healthy throughout.

CONDITION OF THE NERVOUS CENTRES, ETC. IN HYDROPHOBIA.

Case i. Dr. J. A. Sidey relates in the *Edinburgh Monthly Journal* for December 1850, an accurately detailed case, terminating of course fatally, although various energetic remedies, including Indian hemp, Battley's solution, venesection, mercury, caustic, issue in the scalp, were employed. Anæsthesia produced by chloroform was tried, but could not be persevered in, from the accumulation of mucus in the throat and mouth, which produced urgent dyspnœa.

The body was most carefully examined after death by Dr. Hughes Bennett, who had suggested, in the *Library of Medicine*, that most of the symptoms of Hydrophobia might be caused by irritation at the roots of the eighth pair of nerves. But on the most careful examination of different portions of their structure, and of the restiform ganglion, as well as of several portions of the white and gray substance of the cerebrum, cerebellum, and spinal cord, with a microscope, under a power of three hundred diameters, not the slightest change from the healthy character could be distinguished. The circumvallate and fungiform papillæ at the base of the tongue were greatly elongated and enlarged. The salivary glands were also enlarged. The mucous membrane of the fauces and upper part of the pharynx was of a purplish-red colour. The membrane lining the trachea and bronchi to their ultimate ramifications was of a deep-red mahogany colour, and covered with san-

guinolent frothy mucus, which completely filled up the smaller ramifications. The lungs, the heart, and all the abdominal organs, were apparently healthy.

Case II. Dr. James Struthers relates, in the same journal, for January 1851, a case, occurring in a boy. In the case just detailed, there was great sensitiveness of any movement of the air; and a gust of wind, blowing on the patient, caused him to sigh frequently. In the present case, Dr. Struthers says, that while holding the hand of the patient, he blew suddenly in his face, when he sprang, convulsed, to the other end of the bed, covered himself with the clothes, shook and cried very much, and entreated that he would not breathe on him any more. *This established the diagnosis.* In both cases, active symptoms of the disease became manifest after a fright, about a month after the patients had been bitten.

On examination of the body after death, the membranes of the brain were found healthy; but the cerebral substance, both white and grey, was very slightly and uniformly softer than usual. The superficial vessels of the cerebellum and medulla oblongata were generally and pretty fully congested; the grey matter of the cerebellum was rather deeper in colour than natural. Careful examination detected nothing unusual in the cranial nerves, especially the pneumogastric, both where it leaves the medulla oblongata, and at its place of origin in the floor of the fourth ventricle. The same slight general softness, which was observed in the brain, existed in the cord, but to a less extent. The medulla oblongata was normal, and firmer than any part of the cord. The sublingual glands were natural. The trachea throughout was coated with a sanguinolent froth. Congestion, ecchymosis, and emphysema, were found in the lungs, bronchi, and trachea; these are the morbid changes most constantly found in man and animals that have died of this disease, and correspond in frequency to one of the most constant of all the symptoms, viz., convulsions of the muscles of respiration, to which they may fairly be attributed. The mucous membrane of the pharynx and œsophagus was quite natural. The most uncommon appearance was the frothy state of the blood in the right cavities of the heart, previously noticed only by Morgagni and Trolliet. There was absolutely nothing about the nervous centres and roots, which could indicate that the disease was other than a purely functional affection of the nervous system. The eighth pair of nerves were remarkably free from any appearance of disease.

Excision of the lacerated parts, and subsequent cauterisation with the nitrate of silver and pernitrate of mercury, were performed an hour and a half after the patient was bitten, a fact incontestably proving that absorption may take place within that time.

CASE OF COMMUNICATION BETWEEN THE STOMACH AND EXTERNAL SURFACE OF THE ABDOMEN.

Dr. William Robertson relates the following interesting case. Isabella Davidson, an unmarried woman, aged 36, was admitted into the Royal Infirmary of Edinburgh, in November 1850. In 1842, she first observed a tumour in the left side of the epigastrium, not exceeding a pea in size, hard, painful, and tender, which in the course of two years steadily increased to the size of an orange, when it began to subside, and in three months completely disappeared. In a month afterwards, a dark spot, of the size of half-a-crown, appeared in the epigastrium; and then, for the first time, the patient's health began rapidly to give way. On the 22nd of October, 1844, the black spot gave way, and the contents of the stomach escaped from the rent. Water and milk, when swallowed, gushed out from the opening. By the end of January following, the aperture had completely cicatrised, and continued closed for about a year. Early in 1846, the cicatrix became red, and the opening was re-established by ulceration. In a few months the fistula

again cicatrised; but in June 1847, ulceration occurred for the third time, and the communication with the stomach has existed ever since.

For the last three years, she has lain almost constantly in bed, and has worn a piece of linen, secured with a pad and bandage, over the external orifice. Her appearance is perfectly healthy, her appetite good, and the bowels habitually costive. She is cheerful and intelligent, and sleeps well.

The external perforation is situated about 2½ inches from the median line, and 3½ from the umbilicus, close to the cartilage of the eighth left rib. It is of an oval form, and will admit an ordinary-sized thumb. Its margin is rounded, depressed, hard, and red, presenting minute points of ulceration. The surrounding integuments, to the extent of two inches, are red and indurated, and, in a few points, excoriated. On passing the little finger deeply into the orifice, it meets with resistance; when turned downwards and to the left side, in the direction of the pylorus, it passes freely. The mucous membrane of the posterior wall of the stomach can be seen, when the patient is placed in a favourable light; and when she takes a mouthful of milk, it can be observed to flow over the surface opposite to the external orifice. It is believed that the perforation communicates with the stomach through its anterior wall, not far from the great curvature, and probably about four inches from the cardia. The case probably does not admit of remedy; but, from its resemblance to that of Alexis St. Martin, the propriety of instituting some experiments on digestion has been suggested, and a hope is held out that the results may be communicated, at some future period, to the profession. [*Edinburgh Monthly Journal*, January 1851.]

CASE OF INTERMITTENT FEVER WITH INTERVALS OF NINE DAYS.

Dr. Bertrand relates the following case in the *Deutsche Klinik* for Nov. 16, 1850. Although intermittent fever is endemic in the district of Rheingau, where he has practised for ten years, he has never met with a similar case, nor does he find any recorded in the works of other authors. It is remarkable for the duration of the paroxysm and the apyrexia for eight times twenty-four-hours, and for the invasion of the new paroxysms on the ninth day.

Case. Mrs. M., aged 65, had suffered in her earlier years from an affection of the heart with asthmatic symptoms, for which she had frequently been bled. She was seized last June with inflammation of a cutaneous tumour on the left parietal bone, which had existed without inconvenience for fifteen years. She had previously complained for some weeks of pain in the epigastrium. Dr. Sturm, who saw her, found the tumour burst, and discharging some thick matter. While this was going on, and simple local treatment was being applied, the patient was suddenly one evening seized with rigors, followed by violent heat, and delirium. Greater turgidity was manifested in the head; and on the next day, there were fever, constant efforts to vomit, and pains in the limbs, during which there appeared a very red and glistening erysipelatous swelling, commencing at the left ear, and extending over the nape of the neck, the hairy part of the head, the forehead, and the entire left side of the face. The pains in the limbs then ceased, and the dry heat was replaced by a copious and universal sweat, which continued for three days, along with saturated but clear urine. At the same time, the erysipelatous swelling diminished, and disappeared on the fourth day without desquamation. The patient then felt tolerably well, with only some oppression about the head, much thirst, and an irregular pulse—which, however, she stated to be usual to her.

On the ninth day—reckoning that on which the rigors appeared as the first—she was again seized, after pain in the back and lassitude, with a slight rigor, followed by a more intense hot stage, with congestion of the head and delirium, so that she did not know where she was, nor recognise those standing around her. The symptoms declined much in the same manner as before

related. On the ninth day, the rigor again returned, but more severely ; and the urine in this attack, for the first time, deposited a reddish-yellow sediment. In the same manner, four other paroxysms occurred, notwithstanding the employment of sulphate of quinine, which, however, was given in too small doses.

Towards the end of the seventh attack, Dr. Bertrand was called in consultation. He could see no traces of erysipelas. There seemed to be no remarkable enlargement of the spleen. The pulse was irregular. He prescribed sulphate of quinine, to be taken in doses of ten or twelve grains, on the day before the expected return of the paroxysm. The attacks gradually diminished in intensity, still retaining the nine days' type ; and the patient recovered.

THE PARALYSIS WHICH SUPERVENES DURING CONVALESCENCE FROM PNEUMONIA.

In the *Bulletin Général de Thérapeutique* for December 30, 1850, Dr. Macario describes a form of Paralysis, which he has observed to occur during convalescence from acute pneumonia, and which he terms Pneumonic Paralysis. He relates two cases in illustration.

Case I. J. M., of Samerques (Cher), a day-labourer, aged 49, of nervous temperament and feeble constitution, badly lodged and fed, took cold in the beginning of February 1850 ; and, in a few days, he felt a violent stitch in the side, under the right breast. Two days after, on February 10th, Dr. Macario was called to him. There was crepitant rhonchus at the posterior and inferior part of the right lung, with slight dulness ; the sputa were viscid and sanguinolent, the tongue yellow, thirst severe, the breath of a peculiar odour, which Dr. M. has many times observed in pulmonary fluxes ; there was intense fever. He was bled largely, and an emetic was administered, which produced vomiting and bilious stools. He went on well for several days.

February 15. The patient had a relapse. The voice was hoarse, the respiration was quickened, and the tongue had a tendency to become dry. Sibilant rhonchus was heard in the posterior part of both lungs, especially the right, where there was also some sub-crepitant and humid rhonchus. The patient had perspired much during the night ; the pulse was 96. A large blister was applied over the right scapula, and a mixture of white oxide of antimony, which the patient had been taking, was continued.

February 18. The patient complained of great prostration : his voice was slow and very weak, and the cough continued. The sub-crepitant rhonchus at the posterior part of the right lung still continued.

February 19. The voice was still more feeble and broken, the tongue was red at the edges and white at the centre, and rather dry : the sub-crepitant rhonchus had extended, the sputa were yellow and thick, and the pulse 72.

February 23. The patient was convalescent, and commenced to take some nutritious food.

February 28. There was not the least trace of pulmonary affection. The blister had continued to suppurate abundantly ; the surface was covered with a white exudation. The patient also complained of lassitude in the legs, and of a creeping sensation in the soles and palms ; he also saw objects double.

March 6. The blistered surface had not healed, but rather kept increasing in extent. The weakness of the limbs had also increased, and the creeping sensation had extended up the legs as far as the groins, and up the arms as far as the shoulders.

April 26. The blistered surface, though less in extent, was still suppurating. The weakness of the limbs had gone on increasing from below upwards, and they were now heavy, and bent under the weight of the body. The patient

had walked with difficulty, for three weeks, with the aid of a stick; but the creeping sensations having extended over the whole of the limbs, and the muscular weakness having constantly increased, the patient was obliged to use crutches; and finally, in some days, was quite unable to walk. He could not move the lower limbs; and, when let go after being lifted, they fell as if dead, being completely paralysed. The arms, although so far weakened as to render him incapable of feeding himself, always, but in a vague and uncertain manner, obeyed the will. Sensibility was perfect; and there had never been any sensation of coldness in the paralysed limbs.

The patient remained in this state of muscular paralysis for about a month; until one night, towards the end of May, he felt a sensation of cold in the legs, so that he could not warm them; and, in the morning, he was able to move his feet a little. The improvement continued; and at the end of a fortnight he could get up, and walk alone. He soon recovered the complete use of his limbs; but the creeping sensations continued until the end of June, about a month after his recovery from the paralysis. This patient never had head-ache, nor any pains in the region of the spine.

Summary. This was a case of amyosthenia (paralysis of motion), occurring during convalescence from a severe attack of pneumonia. It commenced by simple muscular weakness, which at last successively attacked, *from below upwards*, the whole of the limbs. The paralysis was complete in the lower, incomplete in the upper limbs. The intellectual faculties were entire throughout; there was nothing peculiar in the state of the spinal cord. The paralysis was therefore entirely local, and presented some analogy to hysterical paralysis; and this circumstance rendered the prognosis favourable. The absence of symptoms referrible to the nervous centres, together with the transient diplopia which accompanied the onset of the affection, pointed to the purely functional nature of this new kind of paralysis.

Case ii. B., aged 35, a weaver, was taken ill, with symptoms of pneumonia, on the 24th May 1850. We omit the daily reports of this case, observing merely that a friction sound, indicating pleurisy, was discovered on the 26th; that a large blister was applied to the right side of the back on the 31st; and that the patient went on favourably up to June 9th; the blister, however, still continuing to suppurate.

June 29. The blister still remained open. Five or six days ago the patient was seized, about 3 a.m., with an acute pain in the epigastric region, radiating to the right shoulder and arm, and soon disappearing spontaneously.

July 22. The blister had ceased to suppurate only a few days previously. The patient now complained of sore-throat; and for eight or ten days he had felt great and increasing weakness in the legs and arms. At this date, when he raised his arms, the hands remained flexed on the fore arms; the movements of these limbs were vague and uncertain, and, in spite of all his efforts, the patient could not raise them to his head. For two or three days he was unable to move. When the legs were lifted, and then let go, they dropped like dead bodies. Sensibility remained perfect. The appetite was tolerably good; but there was obstinate constipation. There was no pain in the head or spinal region. The intellect was unaffected. In spite of tonic regimen, and the use of iron, the paralysis increased rapidly; and the patient died on the 24th of July. No autopsy was permitted by the friends of the patient.

Summary. The two lungs were successively seized with inflammation, and on this supervened pleurisy of both sides. In spite of this formidable array of symptoms, a vigorous antiphlogistic treatment was crowned with unexpected success. The patient's appetite returned, and he was able to walk about; only he complained of great weakness in the arms and legs. He was supplied with some good wine to restore his strength; but the debility made rapid and deadly progress; and, at the moment when he was thought safe, he was seized with that paralysis which soon brought him to his grave.

Remarks on the Cases. Dr. Macario asks—what is this paralysis? What is its cause, its rationale, and its seat? Does it depend on an encephalic or on a local influence? Is its proximate cause to be sought in the exhaustion produced by the prolonged and abundant suppuration from the blistered surface? Can it be referred to the action of the brain and spinal cord? These are questions which it would be impossible to answer at present. There was nothing remarkable in the state of the nervous centres: and the author observes, that blisters sometimes go on discharging for as long a time, and as abundantly, without giving rise to paralysis. Besides, are blisters and cauteries, when kept open for years, ever followed by similar effects?

The paralysis appears to have had its seat in the nervous and muscular system of the affected limbs. There was, as has already been observed, an absence of symptoms referrible to the nervous centres; the intellect and volition remained entire; the *fourmillements*, and the muscular weakness, commenced at the palms and soles; that is to say, at the peripheral extremities of the nerves, and gradually proceeded upwards. Dr. Macario believes that, if he had made an autopsy of the fatal case, he would have found nothing to account for the paralysis and death.

In his concluding remarks, the author justly observes, that many cases must be collected before any conclusions are drawn as to the true nature of this affection.

HYDROCHLORATE OF LIME IN SKIN-DISEASES.

The Hydrochlorate of Lime, which exists in many mineral waters, is rarely employed in medicine. It is, however, a valuable remedy, and, according to M. Cazenave, may frequently be substituted for the iodide of potassium. It has moreover the advantage of being easily borne, and may be continued for some time. Biett used it in scrofulous lupus. For some time, M. Cazenave has used it very extensively, especially in cases which have exhibited a predominance of the lymphatic temperament. Thus, in chronic eczema, and especially in impetigo, he gives it in doses of two grammes a day. He gives the following formula: R. Crystallized hydrochlorate of lime, fifteen grammes; distilled water, five hundred grammes. A tablespoonful to be taken three or four times a day. [*Annales des Maladies de la Peau*, as quoted in *Bulletin Général de Thérapeutique*, 30th November, 1850.]

ACONITE IN PAPULAR ERUPTIONS (LICHEN AND PRURIGO).

M. Cazenave states, in the *Annales des Maladies de la Peau* for October 1850, that he has seen Biett employ Aconite with success in secondary syphilis, especially to mitigate the pains in the bones. Believing that a main indication in the treatment of papular affections of the skin is to combat the hyperæsthesia, M. Cazenave has successfully employed the extract of aconite, in daily quantities of from five to ten centigrammes (about three-quarters of a grain to one grain and a half.) Under this treatment, he has found the itching to diminish rapidly, and then to cease; and at the same time the eruptions have disappeared, which were kept up by the irresistible desire to scratch, and aggravated by the action of the nails.

He uses the following formula: R. Alcoholic extract of aconite and extract of taraxacum, of each one gramme (fifteen and a half grains); to be divided into forty pills. One or two to be taken morning and evening. [*Bulletin Général de Thérapeutique*, November 30, 1850.]

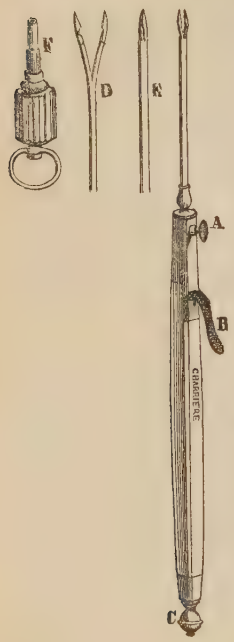
LEAD-COLIC.

Mr. Workman mentioned, at the Reading Pathological Society, a case of hæmoptysis, in which the exhibition of acetate of lead had been followed by severe colic and constipation for nine days, which was at last relieved by warm baths; and Dr. Wells alluded to a case of melæna, where the same effects had occurred. [*Prov. Med. and Sur. Journal*, December 1850.]

SURGERY.

REMOVAL OF FALSE MEMBRANES FROM THE EYE.

Mr. W. R. Wilde of Dublin has recently invented (and described in the *Medical Times*), a very simple and beautiful instrument for the removal of opaque capsules and false membranes from the chambers of the eye. The extraordinary toughness of these formations often renders their division very difficult, but the difficulty will be materially lessened by the ingenious contrivance before us; which is truly a valuable addition to the means and appliances of ophthalmic surgeons.



A strong spiral spring is attached to the end of a fine double canula, and passes through an ivory handle, to be fixed at the end by a ball nut C. B is a spring whereby the long canula is pressed forward through the short one, which is attached by the small screw A to a metal plate at the end of the handle. The part D consists of a fine steel stem, the end of which is cleft, and each extremity forms the blade of a fine pair of shears scarcely a line and a half long, and these, properly adjusted, cut with the greatest precision. When the instrument is used, the spring B being pressed by the middle finger, the long canula is projected through the collar, and the blades of the scissars close with a clipping motion. When B is relaxed, the canula is retracted by the coil, and the blades divaricate. When the canula is pressed forward, and the blades are closed, they form a needle-like point E. F is a key to fix and screw up the spring B.

Mr. Wilde recommends that an opening should first be made for the passage of the instrument, either with a flat needle or extraction knife.

OPERATIONS FOR STRANGULATED HERNIA IN OLD PERSONS.

Mr. W. H. Livett, of Wells, Somersetshire, has published in the *Medical Times* for January 4, 1851, two cases of operation for Strangulated Hernia in persons of advanced age. Both patients were females; one was aged 76, and had inguinal hernia; in the other, aged 79, the rupture was femoral. The after-treatment consisted in the cautious administration of moderate doses of castor-oil, and in the early use of a stimulant and nourishing diet.

Mr. Livett agrees with the opinion of Mr. T. B. Curling, expressed in his paper on the above subject in the London Journal of Medicine for June 1850, as to the advantage of nourishment, and even stimulants, at an early stage after operations for Strangulated Hernia in old people. He believes that when the operation is performed early, before the powers of life are much depressed by the symptoms of strangulation, and when our attention is directed rather to sustain enfeebled powers than to prevent inflammation, advanced age should not *per se* induce us to form an unfavourable prognosis in such cases, or lead us to hesitate in using the only means in our power to prolong life.

OBSTETRICS.

DR. JAMES REID ON PROLONGED UTERO-GESTATION.

The following is an abridgment of some observations made by Dr. James Reid, in an interesting essay on the Duration of Pregnancy in the Human Female, lately published in the *Lancet*. The part to which we more particularly refer is contained in that journal for July 20th, 1850.

Dr. Reid having, in the previous part of his essay, carefully examined some alleged instances of very prolonged gestation, concludes that " in the great majority of them there were cogent reasons on the part of the women for intentional deception, whilst, in the others, various sources of error have been pointed out, which probably led the patients to deceive themselves; and we cannot therefore allow such very exceptionable cases to weigh against the present experience of the whole medical profession. But we may still inquire whether the usually-received period of gestation may not occasionally be exceeded, to the extent of some days. In the Gardner Peerage case, five of the medical witnesses only were opposed to protracted gestation."

The two principal arguments which have been urged against the possibility of protracted gestation are, that " Nature is certain in all her laws," and that " this is evidenced *in the lower animals* in relation to the very point in question." In answer to the first objection, it may be replied, that the natural functions of the womb itself vary considerably in relation to time. The periods of menstruation, and the intervals between the periods, are by no means the same in females; the intervals, indeed, vary not only as to days, but in some individuals to the extent of one or two weeks.

The periods of dentition, of puberty, of decrepitude, are not immutable as to time; there is a general rule, but the exceptions are by no means unfrequent. The power of reproduction itself varies to a considerable extent.

The certain and definite period of gestation in the lower animals has been received as an axiom since the time of Aristotle. His assertion was implicitly relied on for centuries. A few writers, indeed, ventured to question the fact, but it was reserved for Tessier and Earl Spencer to prove, by extensive statistical tables, that the statement as to a fixed definite period for gestation in animals is totally opposed to facts; and the question as to this point may now be regarded as definitely settled. Tessier showed, that in 160 cows the average duration was nine months and ten days; and in mares eleven months and ten days. Of the 160 cows, 68 went beyond the 280th day; some of them to 290 days; 20 went on to 300, and 5 to 308 days. The same deviations occurred as to the term of gestation in mares. Lord Spencer published the result of 764 instances of the gestation of cows, in the *Journal of the Agricultural Society*, from which it appeared, that " the average term of gestation in cows is 285 days." Of the 764 cases, few exceeded that period by more than five or eight days; eight only exceeded it by more than twelve days, and one only went to the eighteenth day beyond. It has been shewn also that in the elephant, sow, bitch, cat, goat, sheep, &c., the usual period of gestation is occasionally exceeded by two or three weeks.

The following table (see next page) of the cases which have fallen under Dr. Reid's notice will serve to shew that the usual duration of pregnancy in woman is about 275 days, rather than 280.

It will be seen that there are well authenticated instances in which the period of gestation has been extended beyond the usual term. In the cases of *single intercourse*, 293 days form the longest period, or eighteen days beyond what Dr. Reid believes to be the usual average duration of pregnancy in the human female. In Lord Spencer's tables, the greatest excess beyond the average term of gestation in the cows (285 days) was also eighteen days. The cases of Dr. Ashwell and M. Velpeau may be considered as doubtful, being without sufficient dates.

DR. REID'S TABLE OF THE DURATION OF PREGNANCY IN THE HUMAN FEMALE.

No. of Case.	Last appearance of Catamenia.	Date of Connexion.	Confinement.	Period of gestation. Days.
1	—	July 27	April 30	276
2	March 14	Mar. 18 & 20	December 20	274
3	December 13	December 13[1]	September 13	274
4	November 6	November 18	August 20	275
5	November 7	November 12[2]	August 12	273
6	January 10	February 2[3]	October 31	271
7	—	November 15	August 16	274
8	—	October 18	July 19	274
9	June 15	July 1	April 5	278
10	—	August 5	April 25	263
11	August 4	August 6	May 13	280
12	August 9	August 11	May 2	264
13	—	October 29	July 30	274
14	November 7	November 18	August 21	276
15	—	October 8	July 9	274
16	—	April 6	January 7	276
17	August 15	August 18	May 25	280
18	July 17	July 22[4]	April 15	266
19	January 9	January 10	October 2.	265
20	—	February 11	November 3	266
21	May 14	May 14[5]	February 10	272
22	—	February 28[6]	November 30	275
23	—	February 9	November 6	271
24	March 5	March 12[7]	December 24	287
25	September 10	Sept. 15, 16, 17	July 5	292 or 293

Dr. Reid has also collected cases from other authors, in which the data were sufficiently determined.

No of Case.	Duration of Pregnancy.	Authors.
	Days.	
1	274	Dr. Girdwood, *Lancet*, December 1844.
2	280	Dr. Montgomery, *Signs and Symptoms of Pregnancy.*
3	260	Dr. Rigby, March 1846.
4	264	
5	276	
6	270	Dr. Lockwood, *American Journal*, December 1847.
7	272	
8	276	
9	284	
10	272	*American Journal of Medical Science*, April 1842.
11	283	Anderson *v.* Whitaker, 1827.
12	287	Dr. Lee, *Medical Gazette*, 1831.
13	273 or 287	Desormeaux, *Dict. de Med.*, vol. x.
14	286	Dr. Dewees.
15	291	Dr. Beatty, *Dublin Medical Journal.*
16	293	Mr. Skey. Case of Cæsarian operation.
17	293	Dr. McIlvain.
18	300	Dr. Ashwell.
19	310	Velpeau, *Art des Accouchements.*

[1] Quickened, April 6th.
[2] Sickness commenced, December 12th.
[3] Quickened, June 16th.
[4] Quickened, November 10th.
[5] Quickened in 19th week.
[6] Sickness commenced, April 14; quickened, July 6th.

With a view to ascertain the experience of those who were most likely to have paid particular attention to this subject, Dr. Reid applied to upwards of forty of our most eminent obstetric practitioners in London, Dublin, and Edinburgh. The large majority were firmly convinced of the occasional extension of the usual period a few days beyond 280. Several, like Dr. Reid, had met with one or two cases only of protracted gestation, out of many hundred, on the exact data of which they could rely. Others, who had not kept notes of their cases, could not positively speak to facts, but had no moral doubt as to the period being extended in some instances. Some, who had extensive experience in private and hospital practice, had never met with an undoubted case of protracted gestation; whilst two affirm that it is their strong conviction that no case ever exceeds the 280th from conception; and one, that it is never carried beyond the ninth calendar month.

DR. JAMES REID ON THE CALCULATION OF THE PERIOD OF EXPECTED PARTURITION, FROM THE LAST APPEARANCE OF THE MENSES.

In the essay above referred to, Dr. Reid makes some remarks on the above subject, of which the following is an abridgment.

Obstetric practitioners most frequently calculate the probable time of parturition from the last appearance of the menses. But in whatever method the calculation may be made, occasional circumstances will greatly interfere with this mode of calculation. 1. A discharge so exactly resembling the menses as not to be distinguished from them by the female, if not in reality identical, may occur every month regularly, as to time, quantity, and interval, during pregnancy. 2. The catamenia may be accidentally arrested by other causes than pregnancy for months, and even years, and impregnation may occur at any period during this stoppage. 3. This accidental stoppage may alone give origin to all the general symptoms of pregnancy, such as morning sickness, tumidity of the breasts, of the abdomen, etc.; and this combination of symptoms may be sufficient to convince the female, as well as her medical attendant, that she is pregnant, when in reality she is not so. Even the fœtal movements have been felt, and graphically described, when the existence of the infant was in the imagination only. Supposing this state to continue for nine months, that at the expiration of this time impregnation really did take place, and that gestation continued for its usual period, it would be difficult to convince the patient that she had not been pregnant during the whole eighteen months.

Again, a female whose catamenial period has always hitherto lasted for five or six days, finds that it is on some particular occasion arrested, after a slight appearance for one day only, or even for a few hours. She looks upon this unusual deviation as a token of pregnancy, regarding the discharge as accidental, and reckons from the period previous to it. At the end of the ensuing month, no appearance whatever is seen, and this confirms her in her original suspicion. Her parturition is expected at the end of nine months, dating from the last full period, but does not take place until nearly two months after this epoch; the explanation being, that impregnation did not occur until a day or two previous to the total stoppage of the expected menstrual discharge. The error may be still greater, should this scanty discharge have occurred more than once, and have been regarded, each time, as an accidental occurrence of the pregnant state. On the other hand, cases of pregnancy are met with, in which such an accidental monthly discharge has taken place for a few hours once or twice, and, from erroneously regarding it as a proper catamenial period, the child has been born much sooner than the anticipated time.

Dr. Reid distrusts, therefore, any exceptional cases of prolonged gestation, the principal datum of which is the last catamenial discharge.

He relates the following cases in illustration of his remarks :—

Mrs. E——, who had borne five children, had never hitherto had any stoppage of the menstrual function, except when pregnant. About ten months after the birth of her last child, which was at that time weaned, she missed a period, and naturally concluded that she was again *enceinte:* this opinion was confirmed by the second period also passing without any catamenial appearance. All the usual general symptoms of pregnancy occurred in succession, but, to her great surprise, she did not quicken as usual at the fourth month, and this occurrence did not take place until the supposed seventh month of her pregnancy. The infant was born exactly twelve calendar months after the last appearance of the menstrual function.

In this case there was evidently an accidental stoppage of the catamenia for three months, at which period conception took place. The apparently late period at which the movements of the fœtus were perceived, but which, in reality, was the usual one at four months, corroborates the above fact.

Mrs. C—— had all the usual symptoms of early pregnancy in May, with total suppression of the catamenia. In this case, also, much surprise was felt that no fœtal movements were perceived until December, and the lady was not delivered till May 20th.

The two cases adduced by Mr. Atlee, in the *American Journal of Medical Science,* as proving a twelvemonth's pregnancy, are to be explained in a similar manner. In one of these cases, the last appearance of the catamenia took place on August 6th, 1832, movements were felt (?) December 25th, but the patient was not delivered until August 13th, 1833 (372 days). In the second case, the last cessation occurred on March 22, 1832, quickening took place (?) on August 5th, and parturition on March 22nd, 1833 (365 days). It is added, that the movements of the fœtus were felt daily after the period of quickening, in both instances.

Dr. Reid has known several instances in which the catamenial appearance had not occurred for many months, and yet impregnation took place. In the Northern Dispensary, in May 1846, a very respectable woman applied for a lying-in letter, she then being advanced to the seventh month of pregnancy. She assured Dr. Reid that she had not had any menstrual appearance for the two previous years ; *i. e.,* since the birth of her last child, which had been weaned for more than a year. In another case, there had been no catamenial appearance for the last six years, during which period the patient had been either pregnant or suckling. Some women even appear to conceive more readily, when there is any accidental stoppage of the menstrual function. A lady who had been married some months without becoming pregnant, was alarmed, during the night, whilst the catamenia were on her, by a cry of fire. She ran out of the house, and remained standing with naked feet on a damp lawn, until the fire had subsided. The catamenia were suddenly checked ; this occurrence was regarded as the natural consequence of the cold, and was for some time treated as a simple case of amenorrhœa. It proved, however, that she must have become pregnant immediately after the accidental stoppage from cold, and the date of her confinement corroborated the fact. Two other similar instances have come under Dr. Reid's notice, in which pregnancy speedily followed an accidental and sudden check of the menstrual discharge by cold, although in both cases no pregnancy had occurred previously for some years. Zacchias states, that he attended a lady who was in general very regular as to her monthly periods, but who never became pregnant until she had passed three or four periods previously. In some rare exceptions a monthly uterine discharge has occurred *only* when the female was pregnant.

The following table is the result of 500 cases, in which the exact number of days intervening between the last day of menstruation and that of parturition is shewn. With the exception of about fifty, they were private cases, in which the data were most correctly kept ; and the others were selected

from upwards of 1000 hospital and dispensary cases, presenting an equal certainty as to date, in females superior to the usual class of hospital patients.

	Days.	Cases.			Days.	Cases.			Days.	Cases.	
37th week.	252	4	23	40th week.	274	21	131	43rd week.	295	2	28
	253	1			275	20			296	5	
	254	3			276	16			297	8	
	255	1			277	16			298	6	
	256	2			278	22			299	1	
	257	4			279	21			300	2	
	258	4			280	15			301	4	
	259	4									
38th week.	260	6	48	41st week.	281	18	112	44th week.	302	1	8
	261	5			282	25			303	1	
	262	3			283	14			304	2	
	263	9			284	15			305	1	
	264	19			285	14			306	0	
	265	5			286	15			307	1	
	266	10			287	11			308	2	
39th week.	267	9	81	42nd week.	288	17	63	45th week.	309	0	6
	268	10			289	8			310	1	
	269	5			290	9			311	1	
	270	13			291	14			314	1	
	271	12			292	6			315	2	
	272	13			293	3			316	1	
	273	16			294	6					

Total, 500 cases.

In the case which occurred 314 days after the cessation of the catamenia, quickening did not happen until the sixth month; proving, in Dr. Reid's opinion, that conception had taken place later than had been thought. Had minute investigation been made, at an early period, into the remaining five cases, which went beyond the forty-fourth week, it is most likely that some similar facts might have been observed. The above table agrees with that of Dr. Merriman (114 cases) in showing that the greatest proportion of women complete the period of gestation in the fortieth week after the cessation of the catamenia, and a very considerable number in the forty-first week. In Dr. Murphy's table of 182 cases, the numbers born in the thirty-ninth and fortieth weeks were about equal, being twenty-four and twenty-five, whilst the greatest proportion (thirty-two) were in the forty-first week, and twenty-five in the forty-second week—equal to those in the fortieth. In Dr. Reid's tables the 282nd day was that on which the largest actual proportion of the patients were delivered; but the numbers from the 274th to the 282nd day run so near to each other that we must rather take that as the average period. If we allow of a range of from two to six days after menstruation, as elapsing probably before conception takes place, it will then appear that about the thirty-ninth week after impregnation is more probably the ordinary duration of pregnancy; and this will coincide with the results of the table taken from cases of single coïtus. [Abridged from *Lancet*, July 13, 1850.]

CASE OF "SCARLATINOID RASH" OCCURRING AFTER DELIVERY. DID AIR ENTER THE UTERINE VEINS?

Mr. Edward L. Falloon, of Liverpool, relates the following very interesting case in the *Medical Times* of January 18th, 1851. We agree with the author in thinking, that the red, or "Scarlatinoid Rash," which he saw, was in no way connected with the entrance of air into the circulation by the uterine veins. We are in some difficulty, however, as to the proper explanation of the case. Mr. Falloon writes as follows:—

"I was called, Nov. 20, at 1 o'clock, A.M., to attend Mrs. A., aged 26, with her second child. She had been complaining since 11 P.M.; pains increased;

head presenting, and pressing much on the linea of the os pubis, where she referred all her pain. At 2 o'clock, sudden fainting came on, with deadly pallor and cold extremities. On her rallying from this, by brandy, open windows, etc., the pains brisked up, and the uterus kept dilating, but was interrupted frequently by the faintness, which kept recurring without any external hæmorrhage, till 3 o'clock, when she had a fearful rigor. She rallied again, and became less faint, but complained loudly, and begged for chloroform, which I was ultimately obliged to give her, with great benefit, till her child was born at 5 o'clock A.M., without any unusual detention in the vulva, but *dead*. Immediately on its exit, the placenta followed, accompanied by an enormous clot, as large as, if not larger than the placenta ; the subsequent hæmorrhage was not excessive, but the faintness was extreme ; nevertheless the uterus contracted well. The shock of her child's death, added to her exhaustion, made her case very critical for some time (she had lost her first child from erysipelas) ; she looked blanched and anæmic to a high degree, but gradually improved. On the third day I was not a little alarmed and surprised to find her covered by a scarlatinoid rash, and the more so on being assured by her mother, then present, that she had had both scarlatina and measles. I had not met with this symptom before, and it was the more unaccountable from being unaccompanied by any appreciable fever ; pulse 96. I ordered a mild alterative and cooling aperient, and left very uneasy. On returning to my study, I happened to take up the *London Journal of Medicine* for October, and read that highly interesting and scientific article by Dr. Cormack, on 'The Entrance of Air into the Uterine Veins,' wherein he alludes to some cases occurring in the practice of Dr. Simpson, in which the same rash appeared three days after delivery, but *all* followed by death ; this made the matter more anxious for me by many degrees. Visiting early next morning, I found the patient improved ; the rash still out, but *paler ;* no febrile symptoms. I ordered a more generous diet, and it continued to disappear daily ; and she ultimately did well, and is now able to appear at her dinner-table, little more than a month since her confinement.

"It is evident this was a case of hæmorrhage in utero, prior to the rupture of the membranes, owing to detachment of the placenta, and the rigor. I suppose the evidence of the child's death ; but I am not in possession of any facts that throw light on the cause of this detachment, except that she had felt debilitated of late from a continuous attack of influenza.

"I am induced to publish this case by a remark I find in the ingenious article by Dr. Cormack, above alluded to, where he says, 'he notices his cases, in the hope that others will, when opportunities occur, make and record their observations.' I also refer to this phenomenon (the scarlatinoid rash) more with a view of adding a case to those already on record, than of proposing any theory regarding it. While I say this, I am not disposed to accept any of the theories at present propounded as at all satisfactorily accounting for this appearance ; nor do I acknowledge any analogy, so far as I am able to judge, between the 'reddish tinge' of Dr. Warren and the 'scarlatinoid rash' of Dr. Simpson ; the former appearing immediately after the evident entrance of air into the circulation, while the latter did not appear until two or three days after the shock of parturition, without any allusion to air having entered the uterine orifices. In my case, I think it is clear that no air entered ; the fainting commenced long before the membranes were ruptured, and faintness only remained after the birth of child and placenta ; besides, I had recourse to such mechanical support as made its entrance almost impossible. Nor do I see any analogy between a continuous, general, and gradually disappearing rash, as above stated, and the 'fitful suffusion of the face with a delicate blush, superseded quickly by extreme pallor.' To this latter I think Dr. Cormack's theory of 'capillary relaxation' admirably applies ; but, with all deference to such high authority, it does not satisfactorily account to my own mind for the former red

hue. If I might venture a theory on the subject myself, I would remark that I believe it to be connected with such a state of body as exists in low adynamic fever, or pure typhus, where there is a general lack of vital tone, depressed organic nervous system, and deteriorated circulating medium; all which were evident in Mrs. A's. case. The rash disappeared on adopting a generous diet and mildly tonic plan; in a word, it appeared analogous to petechiæ or purpura."

M. GUBLER ON ABSCESS OF THE UTERINE APPENDAGES, FOLLOWING THE COURSE OF THE ROUND LIGAMENT.

The *Union Médicale* for November 12th, 14th, and 16th, contains an interesting paper by M. Gubler, in which he relates several cases, in proof of the opinion advanced by Velpeau and Marchal de Calvi, that, in cases of suppuration in the broad ligament of the uterus, the pus may follow the course of the round ligament, and appear at the inguinal canal.

Case I. G., aged 29, primipara, was admitted into the Charity Hospital on 9th July 1846. At the ninth month of pregnancy, she had felt gradually increasing pain in the right side of the hypogastrium. Delivery was favourably accomplished; but the pain afterwards increased, and a fulness was perceived in the right groin, which became the seat of pricking and darting pains. On July 10th, there was no fever; the only additional symptom was a slight impediment to micturition. On examination, a swelling was discovered in the situation of the orifice of the inguinal canal. There was no change of colour in the skin; the percussion-sound was dull, and there was evident fluctuation. The swelling could be felt along the inguinal canal, becoming more and more deep, and disappearing at a point nearer to the anterior superior spine of the ilium than to the spine of the os pubis. In the abdomen, it was much enlarged, so that, on feeling it through the relaxed abdominal walls, its boundary could be easily determined. The projection and tension of the external tumour was increased on coughing; and the same effect was produced by pressing on the intra-abdominal portion of the tumour, or even on the inguinal prolongation. On the other hand, the size of the external projection could be temporarily greatly reduced, by pressure in the opposite direction. On the next day, the external tumour having attained the size of an egg, an incision was made, from which a large quantity of healthy inodorous pus escaped; and a linseed-meal poultice was applied. On the 18th, the patient quitted the hospital convalescent.

M. Gubler admits that, in this case, there is some doubt whether there had been an opening from an abdominal abscess through the posterior wall of the canal, or whether the pus followed throughout the course of the round ligament.

Case II. D. L., aged 26, was admitted into hospital on 6th July, 1848. She had been delivered of her fourth child on the 15th of May. On the third day, she complained of colic; and, after this left her, there was still pain in the loins, produced by the slightest movement. About the 12th of June, she felt a painful tension, and afterwards shooting pain, in the right side of the hypogastrium. She had ten leeches and a poultice applied, and kept her bed. Twelve days after, having found no improvement, she entered the hospital. On July 7th, there was found, towards the left iliac fossa, a rounded swelling, entirely distinct from the abdominal wall, and very painful on pressure. M. Cazeaux examined the uterus, and found nothing morbid in this organ. Febrile symptoms being prominent, M. Rayer had her bled from the arm, and a poultice applied over the abdomen. The patient appeared to go on well for some days, when the pain became more severe, and a flying blister was applied over the left side of the hypogastric region: this did not, however, diminish the pain, and the tumour went on increasing. The fever having increased, she was again bled; and this produced a notable

alleviation of the pain. On August 8, in consequence of an increase in the size of the tumour and of the pain, six leeches were applied above the flexure at the groin. No appreciable benefit resulted; and the following was her condition on August 15th.

The internal side of the left iliac fossa was occupied by a painful and resisting tumour, which reached nearly to the level of the anterior superior spine of the ilium, and extended towards the pelvis, where it seemed to be connected with the body of the uterus. Its upper part was felt, through the abdominal wall, to be rounded. The skin had undergone no change of colour; there was no œdematous puffiness, nor superficial tenderness; but sharp pain was elicited by a little firmer pressure. There were also darting pains towards the external genital region. On examination *per vaginam*, the body of the uterus was found enlarged on the left side, with diminished mobility, and puffiness of the cellular tissue. On the following days, the tumour projected more in the groin, and was the seat of deep fluctuation. It went on extending along the groin, and at length reached the external opening of the inguinal canal. The skin then assumed a rose-coloured tint, and the fluctuation became superficial. On the 28th August, the abscess was opened; and the direction of the purulent collection was ascertained by a sound, which passed upwards and outwards, as well as gradually deeper. The patient after this went on well, and was discharged cured on the 30th September. There could only be felt, as in the preceding case, a hard cord along the inguinal canal.

Case III. E. L., aged 23, was admitted, on the 31st December, into the Hôpital Necker, under M. Trousseau. She had been recently delivered of her first child. She entered the hospital in consequence of constipation, and severe pains accompanying each stool, and continuing for half an hour after. She was found to have two superficial fissures in the mucous membrane at the back of the anus. M. Trousseau prescribed rhatany enemata, from which she received benefit. She was then attacked with gradually increasing pains in the left side of the hypogastric region. On palpation through the abdominal walls, a tumour was felt, in the situation of the left ovary. The patient suffered much pain during this examination, which was, however, conducted with great care. Nothing was discovered on examination *per vaginam*. There was a quick and full pulse, and heat of skin. In spite of leeches, poultices, and mercurial ointment, the intra-pelvic tumour slowly increased, appearing on some days very tense and painful, with strong reaction, and at other times remaining stationary, with diminution of the febrile symptoms. These exacerbations and remissions occurred three or four times; and the swelling gradually reached the anterior abdominal wall, towards the end of January 1847. When the abscess pointed, it was opened, and 200 grammes (about ʒviss.) of fetid phlegmonous pus escaped. The flow of pus was affected by the respiratory movements. The patient was attacked with diarrhœa and hectic, which much reduced her; and she died on the 7th March, after having suffered for a week from choleriform symptoms—cyanosis, rice-water stools, cold breath, and vomiting.

Post-mortem Examination, thirty-eight hours after death. The inguinal abscess was ascertained to have its opening between the pillars of the external inguinal ring. The inguinal canal was traversed by a blackish cord, dissected out in nearly its whole extent, and evidently formed by the round ligament and the vessels, which had resisted the suppurative process. The walls of the canal were also coloured; and it contained a quantity of greenish pus. The inferior border of the internal oblique and transversalis muscles, which bound the canal superiorly, were also dissected out for a small extent, from the internal orifice, towards the posterior superior spine of the ilium. The fistulous passage, having reached the anterior wing of the broad ligament, became gradually narrower, and contained cellular filaments, which increased in quantity as its situation became deeper. It finally ended at the ovary, at

the level of a grey point, with an ulcerated centre, and softened edges, which corresponded with a purulent cyst as large as a small hazel-nut. In the left ovary, also, two additional cysts, of about the same size as the other, were found, which opened into each other so as to form a single bilocular cavity. They were all lined with a white false membrane, outside which there was a layer of blackish-grey tissue ; and beyond this was the healthy stroma of the ovary. The ovary was adherent to the Fallopian tube. The uterus was bound down towards the left side by shortening of the broad ligament ; its interior was greyish, and lined by a membrane of slight consistence. There was no false membrane in the peritoneum, and only a few drops of fluid.

The matter contained in the ovaries, and in the fistulous passage, was white and opaque, perfectly resembling very thick milk of lime. Under the microscope, it appeared as a transparent colourless liquid, holding in suspension very small strongly refractive granules, which, when isolated, exhibited Brownian movements. They were, however, often collected either into bodies resembling granular corpuscles, or into larger masses. There were also some pieces of a transparent colourless substance, probably fatty matter ; while the granules were probably inorganic, the result of the transformation of pus.

Remarks. M. Gubler has observed the phenomena which he describes only in puerperal women ; and it is in these that inflammation of the broad ligament is most frequent. In all three cases, suppuration in the ovary appeared to be the point of departure : the affection was always confined to one side. These cases present some particular symptoms, beyond those common to intra-pelvic phlegmonous tumours. First, there is an ill-defined deep projection, at the level of the abdominal orifice of the inguinal canal, gradually becoming more superficial, as it extends in the direction of the canal. At the same time, fluctuation becomes more distinct. At last the abscess points at the external opening. The whole abscess thus resembles a wallet ; there is an enlarged portion externally and internally (the latter being much the largest), and an intermediate neck, a sort of inter-parietal isthmus. The large size of the internal pouch explains the quantity of pus which flows, and the effect produced on the flow by respiration.

After operating, it is easy to pass a probe along the course of the abscess in the inguinal canal. It is at the external abdominal ring that the redness of the skin is most marked ; and it is there that the abscess must be opened, which should be done as soon as fluctuation is evident, so as to avoid the occurrence of greater mischief in the interior of the abdomen, or in its walls. The incision should be parallel with the inguinal fold, so as to avoid wounding the arteries which accompany the sub-pubic ligament, or which arise from the external pubic arteries, and generally follow that direction.

The pus is always phlegmonous and of good consistence : in one case only it had a disagreeable odour. Its quantity is very considerable for the first days after the abscess has been opened, but gradually diminishes, and, in favourable cases, soon disappears. In one case, the wound was cicatrised on the sixth day ; in the second, the cure was only obtained in a month ; in the third, the purulent exudation was much diminished two months after the operation, when the patient was carried off by an attack of sporadic, or rather symptomatic cholera. After recovery, there remains an engorged hard cord, following the course of the inguinal canal.

The impulse given by coughing would cause these cases to resemble hernia ; but the fluctuation and dulness on percussion furnish a means of diagnosis.

M. Gubler recommends the application of blisters at the situation of the external abdominal ring, to hasten the pointing of the abscess in this situation. The prognosis in these cases is favourable.

PSYCHOLOGY.

DR. COLDSTREAM ON THE ATTEMPTS RECENTLY MADE TO IMPROVE BY EDUCATION THE PHYSICAL AND MORAL CONDITION OF THE FATUOUS.

Until lately, all children affected with congenital idiocy were regarded as incurable. It appears, however, from experiments recently made in France, Switzerland, America, and England, that one-third of the children subjected to appropriate treatment have been in a few years so greatly improved, both in mind and body, as to be capable of conducting themselves with propriety, and taking part in the ordinary business of life.

Three years ago, an asylum for idiots was established at Highgate, near London. The popularity and necessity of this institution are alike proved by the fact, that in 1849 there were one hundred and seventy candidates for fifteen vacancies; and it was forthwith resolved to erect large additional accommodation. A similar institution was founded at Bath, in 1846. So long ago as 1828, M. Ferrus, chief physician of the Asylum of the Bicêtre, Paris, organised a school for his idiotic patients, and caused them to be taught habits of order and industry, and to be instructed in reading, writing, arithmetic, and gymnastics; and latterly, much attention has been devoted to the means likely to rouse and invigorate their dormant faculties. These means, as stated by Dr. Conolly, are simple, viz., suitable space, and local arrangements adapted to the conservation of the health and safety of the pupils, and to the establishment of cleanly habits,—to presenting them with objects for the exercise of their faculties of sense, motion, and intellect,—and to the promotion of good feelings, and of a cheerful active disposition.[1] Schools for the insane have also been successfully established in the Lancaster and Surrey County Asylums, and also at Hanwell.

Even cretinism (which must be regarded as idiocy in its most intense degree) has been successfully treated, within the last ten years, at the retreat on the Abendberg, in Switzerland, by the benevolent Dr. Guggenbühl; and his example has been followed in Wurtemberg and Sardinia. Attention has also been strongly directed to the subject in the state of Massachusetts. Private schools for idiot children have been opened at Bendorf, not far from Coblentz, on the Rhine (by Dr. Erlenmeyer); and at Barre, in the state of Massachusetts. At the late meeting of the British Association in Edinburgh, it was agreed to memorialise the government in favour of a national survey, to determine the extent to which congenital idiocy exists throughout the kingdom at large, and the causes of its prevalence in particular districts. But we cannot admit that it is expedient to await the result of such a survey, though important, before making any effort to give some of our poor imbeciles the benefit of the knowledge we already possess.

The reports from the institutions already in operation are highly gratifying. At Highgate—"There is now order, obedience to authority, classification, improvement, and cheerful occupation. Every hour has its duties, and these duties are steadily fulfilled. They are, essentially, not only an improving, but a happy family. And all this is secured without the aid of correction or coercion. The principle which rules the house is love." The report from Bath is equally satisfactory. "The pupils are instructed, as their capabilities permit, in reading, writing, arithmetic, and geography; and their acquaintance with external objects is extended and improved. Religious knowledge and moral culture are directly or indirectly kept in view in every pursuit. Corporal punishment is not permitted."

"The pupils in the school in Massachusetts, although only a year in train-

[1] Brit. and For. Med. Rev. vol. xix, p. 295.

ing,[1] had improved in personal appearance and habits, in general health, and in vigour and activity of body. Some of them could control their own appetites in a considerable degree; they sat at table with their teachers, and fed themselves decently. Almost all of them had improved in understanding, and in the use of speech. Some of them had made considerable progress in the knowledge of language; they could select words printed on slips of paper, and a few could read simple sentences. They had gained a knowledge of many objects, their names, colours, forms, dimensions, etc. "And thus," the intelligent reporter concludes, "it has been demonstrated, that idiots are capable of improvement, and they can be raised from a state of low degradation to a higher condition. How far they can be elevated, and to what extent they may be educated, can only be shewn by the experience of the future." [Abridged from *Edinburgh Monthly Journal of Medical Science*, November 1850.]

MATERIA MEDICA AND PHARMACY.

CHLOROFORM AND SULPHURIC ETHER.

Dr. J. D. Gross (*Transactions of the American Med. Ass.*) makes the following remarks. "In several of my cases, transient opisthotonos appeared to have been produced by the inhalation of chloroform. This phenomenon was strikingly displayed in a young gentleman of Covington, Ky., to whose hip I applied the actual cautery on account of coxalgia. While under the influence of chloroform, which he inhaled rather badly, his head was forcibly thrown backwards, and the body forwards, precisely as in opisthotonos. The effect did not last longer than fifteen or twenty seconds. No stiffness of the jaws was noticed. On two occasions, while performing the operation of lithotomy, the patients were affected with the most violent priapism, which, however, subsided, in each case, in less than half a minute. The ages of the patients were, respectively, four and twenty-two years. I may remark here that I never witnessed a similar result in any of my stone cases in which chloroform was not administered.

"Since I have commenced the use of chloroform, I have abandoned that of sulphuric ether altogether, being persuaded, from ample experience, that the former is, in every respect, preferable. It produces the desired effect in a much shorter time, causes less excitement of the brain, is more persistent in its action, and is more easily inhaled. In a word, I have every confidence in its efficacy and safety, and could hardly imagine a more desirable anæsthetic agent.

"Finally, my rule always is to bring the system gradually, not rapidly, under the influence of chloroform; an object which is usually attainable in thirty or forty seconds, provided the patient gives his thorough cooperation, and does not embarrass us by his obstinacy or timidity."

UNCERTAIN STRENGTH OF LONDON TINCTURE OF OPIUM.

Mr. A. Allchin has called attention to this subject. Tincture of opium, properly prepared according to the *London Pharmacopœia*, contains one grain of opium in nineteen minims. In seven specimens obtained from seven different London drug-shops, the strength varied from 19, 20, 21, and 22, to 26 and 28 minims, as the equivalent of one grain of opium. Perhaps these serious variations may arise from moist opium being used in place of the dry—from avoirdupois being used in place of troy weight—and also from the great difference which exists between different kinds and supplies of opium as obtained in the market. By drying, opium loses about twenty per cent.; and it is obvious that for this, allowance should be made when the moist drug is used.

[1] Second Report to the Senate of Massachusetts, on Training and Teaching Idiots, by S. Howe, M.D. 1850.

PRACTICAL REMARKS UPON IPECACUANHA, WITH A FORMULA FOR THE SYRUP.

By Edward Jenner Coxe, M.D.: New Orleans.

The value and efficacy of ipecacuanha, as an emetic or expectorant in many affections of the respiratory organs, more particularly of children, are too generally conceded and acted upon to require an extended notice.

In dysentery, ipecacuanha has been, and continues to be, much used. By Mosely, who held it in high repute, ipecacuanha was given in doses of half a drachm to two scruples; and by the late Professor B. S. Barton, it was regarded as almost a specific, particularly in cases of a typhoid character. In chronic diarrhœa, small doses of the powder, repeated several times a day, either alone, or preferably in conjunction with opium or Dover's powder, will be found of great value, and frequently, with strict attention to a proper regimen, will succeed in curing many most unpromising cases. In these last cases, when dependent upon, or connected with, derangement of the biliary secretion, additional power will be given to the above doses, by uniting with them two or three grains of blue mass, to be repeated every night for three or four nights, and subsequently every third or fourth night, as long as may be deemed requisite or advisable for the individual cases.

In hæmorrhage from the lungs or uterus, small doses of ipecacuanha, combined with sugar of lead and opium, are used with decided benefit. In hæmorrhage from the stomach, large doses of ipecacuanha have been strongly recommended, more particularly by Dr. Condie, who has published some valuable practical remarks upon the subject.

In the early stages of the bowel affections of children, no less than in adults, an emetic of ipecacuanha will often succeed in arresting the progress of the disease, and rarely fail to prove beneficial.

By combining from one-fourth to half a grain of ipecacuanha, with a minute portion of opium, and two or three grains of blue mass, the alterative properties of this last are materially enhanced. This method will be found of great benefit in most of the mild cases of biliary and bowel derangement so prevalent in this region, at different seasons of the year.

With the exception of that sudden and often fatal disease, croup or hives, there are perhaps none of the pectoral diseases of children, in which the syrup of ipecacuanha may not be resorted to with advantage; but in croup, no little experience, and an almost uniform success in its treatment, authorize the confident belief, that we possess no one remedy, or combination of remedies, comparable, or equal to the well-known Coxe's Hive Syrup, provided it be properly prepared. Dr. Good has remarked, that the ipecacuans concur in operating very generally upon the skin, at the same time that they excite the stomach, increasing, in a slight degree, the discharge of mucus from the lungs, and adding a little to the peristaltic motion of the bowels, while the antimonials act more violently upon the stomach, bowels, and skin, but less upon the mucous secernments.

Finding the process, for the syrup, recommended in the United States Dispensatory, attended with unnecessary trouble, and uncertain as to uniformity, I adopted, after many trials, the following formula,

R.—Ipecacuan. Rad. contus.	℥ iv,
Aquæ	O. ij,
Sp. Vin. Rect.	℥ x,
Sacch. Alb.	lbs. iij.

Macerate the bruised ipecacuanha in one pint of boiling water for twelve hours, then add the remainder of the water and alcohol, and continue the maceration for five or six days. Place the whole in a small displacement apparatus, returning the fluid that passes until it becomes perfectly clear, and then continue to pour a small quantity of water occasionally upon the surface, until two pints and ten ounces by measure shall have passed. Now add the

sugar, and with a gentle heat, evaporate until the syrup shall be of a proper consistence, readily ascertained by occasionally taking out a small portion and allowing it to cool. When of a proper consistence, pass it through a small quantity of fine tow placed in the tube of a funnel, to render the syrup clear and transparent. Three pints and ten ounces of syrup is the quantity obtained. It is, in strength, nearly double of that prepared by the usual formula; and this I consider an additional recommendation. [From the *Western Lancet.*]

HYGIENICS.

WHAT DISEASES OF THE SKIN ARE INCOMPATIBLE WITH LACTATION?

This is a practical question of the highest interest; and its solution has hitherto been far from satisfactory. The following is a summary of a memoir which M. Cazenave has published, on the subject, in the *Annales des Maladies de la Peau* for October and November 1850.

There is a great number of skin-diseases which, speaking absolutely, are not incompatible with lactation. Such are the non-specific eruptions, in the acute stage; erythema, herpes, eczema, pemphigus, impetigo, ecthyma, having, in this stage, no other force than that of an accidental transitory inflammation, and exercising no appreciable influence either on the lacteal secretion, or on the health of the infant. Considered relatively, some of these diseases may, under certain circumstances, have peculiar effects. Thus acute eczema, if intense and general, may have the effect, through its general influence on secretion, of diminishing the quantity of milk. Impetigo, denoting a morbid exaggeration of the lymphatic temperament, may also be incompatible with lactation; and so also may lichen and ecthyma. But, setting aside certain relative peculiarities, and certain individual circumstances, or organic relations between the nurse and the infant, which impress on these eruptions a character of relative severity, of which the value can only be ascertained by examining each case by itself, M. Cazenave thinks that, in general, most of these eruptions, when in the acute stage, cannot be considered as a reason for rejecting a woman as a wet-nurse, and still less for discontinuing the suckling of an infant by one in whom any of them has appeared during lactation.

As to these affections in the chronic stage, and as to those various forms of skin-diseases which are confounded under the name of *dartres*, M. Cazenave thinks that there is a large number which are compatible with the function of lactation, and of which the presence, either in the mother, or in the nurse, should not be considered a source of danger to the infant, nor a reason for changing its food. Any influence which these may, under certain conditions, exert on the infant, is only relative.

The cutaneous diseases which have a negative absolute value in the choice of a nurse, or which ought to become an obstacle to the continuation of lactation, belong to several categories. Eczema, impetigo, or lichen, may become incompatible with lactation, when in the chronic stage, and when their extent and intensity are more considerable than usual. But there are some diseases of the skin which of themselves, independently of all circumstances of duration or intensity, produce in general, though in different degrees, a complete change in the economy. And this change, although accidental and possibly only transient, is such as to impart to these eruptions, even in the acute state, an absolute value, as contra-indicatory of lactation. Such are chronic ecthyma, which always denotes a cachectic state of the constitution; rupia, pemphigus and purpura, which likewise reveal a deterioration of the system.

There are, further, some diseases of the skin, which are very important in

the point of view which we are now considering, and which are characterised by degeneration of the tissues, and by their tendency to destroy the affected parts; such as the two forms of elephantiasis, molluscum, lupus, keloid, etc.

The contagious skin-diseases (itch and herpes tonsurans) cannot have any influence on lactation; but it is otherwise with favus, which is one of the most incompatible. There remains but one form of skin-disease—the syphilitic—which is directly transmissible by suckling, and consequently is the most incompatible of all.

Recapitulation. It is no longer allowable, in making choice of a nurse, to proscribe, in a general manner, the diseases of the skin known under the name of *dartres*. With regard to lactation, skin-diseases have different values, not only according to their nature, but also by reason of certain accidental conditions of individuality, extent, intensity, etc. The syphilitic affections alone should be excluded as virulent. Several cutaneous affections have a negative absolute value, as producing a generally severe modification of the organism: these are precisely the diseases farthest removed from those called *dartres*, and which do not properly constitute eruptions. The eruptions, properly so-called (*dartres*), are generally compatible with lactation. Some may accidentally lose this quality, by being of unusual intensity, or by transmitting a deterioration of the economy; but they are few in number. The eruptions which, in their nature and local conditions, are perfectly compatible with lactation, may cease to be so relatively, in consequence of certain peculiar relations between the nurse and the infant. [*Bulletin Général de Thérapeutique*, 15 December 1850.]

DISEASES ATTACKING PERSONS EMPLOYED IN THE MANUFACTURE OF SULPHATE OF QUININE.

At the meeting of the Academy of Sciences in Paris, on the 5th October, a memoir by M. Chevallier was read, on the health of the men employed in the preparation of sulphate of quinine, and on the means of preventing the diseases to which they are subject. The manufacture of sulphate of quinine has been carried on in France for thirty years, and has produced certain affections, which have not hitherto been studied. M. Chevallier's researches have led him to the following conclusions.

1. The workmen, employed in the manufacture of sulphate of quinine, are liable to be attacked by a cutaneous disease, which compels them to suspend their work for a fortnight, a month, or even more. 2. There are some workmen who cannot continue the work, and are obliged to quit the manufactories where they are employed. 3. M. Zimmer, manufacturer of sulphate of quinine at Frankfort, has observed that the men employed in the pulverisation of quinine in his manufactory, were attacked by a peculiar fever, which he calls cinchona fever (*china fieber*). 4. This fever has not been observed in France. 5. No means have, as yet, been discovered to prevent the cutaneous disease which affects those employed in the manufacture of sulphate of quinine. 6. This cutaneous disease attacks not only the men employed in different parts of the works, but also sometimes persons who are exposed to the emanations from the manufactories. 7. It attacks those workmen who are of sober habits, as well as the intemperate. 8. The existence of predisposing causes in the workmen is not demonstrated: but many believe that such exist.

For the prevention of the diseases referred to, M. Chevallier recommends that the manufactory should be in a well-ventilated situation, and that the workmen should expose as little as possible of the cutaneous surface either to the aqueous, or the alcoholic decoctions. He further suggests that it might be possible to destroy the emanations by the use of chlorine fumigations. [*L'Union Médicale*, Oct. 10, 1850.]

THE HOSPITALS OF LONDON. No. II.

BY DR. CORMACK AND DR. SEMPLE, ASSISTED BY NUMEROUS REPORTERS.

THE VITAL STATISTICS OF HOSPITALS.

Dr. Webster has recently directed the attention of the profession to this subject, by his paper in this Journal, which appeared in December last; and various criticisms and suggestions have likewise been elicited by that communication. The commencement of a new department in the London Journal of Medicine, devoted to the "Hospitals of London", is, we may add, bringing into our possession much valuable information on the same subject. In the meantime, we think, the publication of the following letter cannot fail to be of much use in giving a proper direction to the inquiries now making, or about to be made, by ourselves and others, into the vital statistics of the London Hospitals. We thank Dr. Rees for permission to print his valuable communication.

Letter to Drs. Cormack and Semple, *from* G. Owen Rees, M.D., F.R.S., *Fellow of the Royal College of Physicians, Assistant Physician to, and Lecturer on Materia Medica at, Guy's Hospital.*

Gentlemen,—The subject of mortality in Hospitals, which has of late attracted the notice of the profession, will naturally occupy your attention. I am therefore anxious to bring before you a plan of return, which, were it generally adopted, would at once shew the fact of increased mortality in any particular hospital or hospitals, with a degree of accuracy such as I am not aware has yet been attempted. I cannot refrain from expressing regret that, while careful analysis of statistical returns supplies us with most valuable knowledge, it is still, unfortunately, too evident that this analysis is, even in the present day, occasionally neglected; and that returns, in themselves correct, are made instrumental to fallacious reasoning, and the promulgation of the grossest errors.

It will be well, perhaps, here to enumerate, in the first place, some of the causes for variation, which must affect hospital statistics, and invalidate returns referring to the total deaths per annum, in so far, at least, as they may be used *in comparing the mortality of one Hospital with another.*

1st. The mortality among physicians' cases is greater than among surgical cases; and hospitals do not contain the same proportions of these two classes of patients.

2ndly. The mortality among ophthalmic cases is scarcely any; and some of our General Hospitals (Guy's more especially) have always a certain number of ophthalmic cases in the wards.

3rdly. The mortality among obstetric cases may be regarded as probably less than that of medical cases generally; and hospitals contain this class of patients in varying proportion.

If the above statements be admitted, we ought then to place the deaths, medical, surgical, obstetric, and ophthalmic, in different categories.

Even with this arrangement, however, the number of deaths occurring during a year in each institution, and under each head, will shew us but little, if we place the *number of beds* devoted to each subject side by side with the mortality for each hospital, and for the following reason. The number of patients passing through different hospitals in any given time, bears no relation to the number of beds contained in each,—hospitals in which the *accommodation is equal* passing very *different numbers* of patients through their beds during the year. This difference is so marked, that in one case the excess, I know, amounted to more than one-third of the whole number passing through the hospital, the population of which had been the most stable.

In the table I append, you will perceive that this evil is obviated, by taking the number of patients under each heading passing through the hospitals during a year, and comparing the number with the total mortality for the same period. The derived column headed "Deaths per cent." will then give the correct comparison at a glance.

The mortality among children in General Hospitals may, I think, be safely taken at about the same as that among physicians' cases generally. Their number is not great in such institutions. It may also be well to mention, that patients will sometimes leave hospitals immediately before death, in order to die at home, either at their own desire or that of their friends. This, I believe, is not a very material point, so far as comparison is concerned, as it probably affects hospitals about equally upon the number of patients passing through them during the year. It would appear of the very greatest importance, to detect the difference in the mortality of hospitals. With correct information on this point, we can scarcely fail, not only eventually to detect the causes of evil, but we may perhaps also gain a knowledge of the *more specific influences* exercised by these causes, as they shew themselves in the various localities of the metropolis. I append the table which I would propose for these hospital returns, and have the honour to be,

Sirs, very obediently yours,

G. Owen Rees.

10, *Cork-street, Burlington-gardens,*
January 20th, 1851.

Name of Hospital.	Medical Cases.			Surgical Cases.			Obstetric Cases.			Ophthalmic Cases.		
	No. of cases in the year.	Actual Deaths.	Deaths per cent.	No. of cases in the year.	Actual Deaths.	Deaths per cent.	No. of cases in the year.	Actual Deaths.	Deaths per cent.	No. of cases in the year.	Actual Deaths.	Deaths per cent.

GUY'S HOSPITAL.

The following is the Medical Staff at Guy's; with the date of each officer's election.

Consulting Physician. Dr. Bright, *elected* 1824.

Physicians. Dr. Addison, *elected* 1824; Dr. Babington, *elected* 1838; Dr. Barlow, *elected* 1840.

Assistant Physicians. Dr. Hughes, *elected* 1840; Dr. Rees, *elected* 1843; Dr. Golding Bird, *elected* 1843.

Surgeons. Bransby B. Cooper, Esq., *elected* 1825; Edward Cock, Esq., *elected* 1838; John Hilton, Esq., *elected* 1845.

Assistant Surgeons. John Birkett, Esq., *elected* 1849; Alfred Poland, Esq., *elected* 1849.

Obstetric Physicians. Dr. Lever, *elected* 1844; Dr. Oldham, *elected* 1845.

Surgeon of the Eye Infirmary. John T. France, Esq., *elected* 1849.

Physician to the Lunatic Ward. Dr. Gull, *elected* 1847.

Resident Medical Officer. James Stocker, Esq., *elected* 1834.

Last month we gave a short account of the plan of clinical instruction in Guy's Hospital. We now subjoin some details of the general *matériel* of the school,—viz., its Museums, Library, Dissecting-room, etc.

The Museums of Human and Comparative Anatomy are on a scale which entitles them to rank among the first of our national collections. The late treasurer, Mr. Harrison, under whose auspices they arose, and have reached their present large development, has conferred a lasting obligation on our profession by the munificent manner in which he carried out his designs for the advancement of medical education ; and we may venture to say that, in the means of teaching, Guy's Hospital School is not second to any institution in this country. The present treasurer, Mr. Dobrée, has, since he has been at the head of affairs, done much towards the furtherance of the labours of his predecessor, by affording a more commodious building for the Comparative Museum, and by the erection of a new Dissecting-room.

The *Museum of Human Anatomy* is divided into an anatomical and a pathological department ; both of which are replete with numerous and illustrative examples, under the several subordinate divisions.

The anatomical department contains nearly two thousand different preparations of the organs and tissues. The principal contributors have been Dr. Hodgkin (who laboured at it for many years, and to whose talent and industry it is much indebted), Sir Astley Cooper, Mr. Key, Mr. Cock, and Mr. Hilton ; and, for the female organs of generation, Dr. Oldham.

This division of the museum deserves especial mention, from its containing a series of models of the different regions and organs, which stand unrivalled as works of art, and present one of the most complete and most minute representations of the body in existence. They have been executed within the walls of the institution, by Mr. Towne, from dissections made by Mr. Hilton, the lecturer on anatomy, who has been assisted during the last three years by Mr. Callaway. We would premise our remarks upon them by observing, that their intention is not to supersede the necessity for dissection by the student himself, as some have misapprehended. Nor indeed have they that effect ; but amongst other advantages which they possess, such as presenting at a view the ordinary relation of parts, etc., many of them are from dissections more elaborate than the general skill of a student could enable him to produce, during the usual period of his studies ; and others represent complex relations of parts, which could not be arrived at without many separate dissections, and a knowledge of which the student could not in many instances obtain without this assistance from art. Although their great beauty and delicacy of finish may be appreciated by the uninstructed, yet they can be adequately prized only by the anatomist, who sees in them an actual representation of all that his utmost perseverance could effect upon the recent tissues. It is but due to the talent which is here shewn, to draw attention to this distinction, particularly as their general merit as works of art is apt to cause their intrinsic and essential worth, namely, their truthfulness, to be overlooked.

The illustrations of the anatomy of the brain deserve especial praise. Of these there are thirty, exhibiting different sections of the organ in all its details. There are also thirty-nine, shewing its development from the earliest fœtal conditions, and a unique series of the convolutions in the principal varieties of the human race. The organs of sense have also been fully illustrated, especially the ear, the complex parts of which have been developed with exquisite skill, the relative proportions being maintained, and even the character of the textures preserved. The entire distribution of the nervous system is shewn ; and we may refer to the model shewing the branches of the fifth nerve and its connexions, as a master-piece, both of dissection and of modelling. To give a description of the whole would be to write an entire work on anatomy, for the nervous, muscular, circulatory, and absorbent systems have been each fully displayed.

The pathological department is divided into twelve sections. It contains four thousand eight hundred specimens, with two thousand drawings, representing the appearances in the recent structures. The drawings are arranged in a cabinet, so as to correspond to the different sections, which are as follows. I. Diseases of bone. II. Joints, ligaments, tendons, etc. III. Vascular system : Heart, arteries and absorbents. IV. Nervous system : Skin. V. Respiratory organs. VI. Digestive organs : Liver, spleen. VII. Urinary organs : Calculi. VIII. Female generative organs. IX. Male generative organs. X. Peritoneum. XI. Utero-gestation, malformations. XII. Parasites. In each section the specimens are arranged under—1st. Deficiency ; 2nd. Excess ; 3rd. Form ; 4th. Disordered nutrition, common inflammation, etc. ; 5th. Scrofula ; 6th. Malignant disease ; 7th. Parasites ; 8th. Injury.

The contributors have been numerous ; among the principal we may name Dr. Hodgkin, Sir A. Cooper, Mr. Key, Dr. Bright, Dr. Addison, Mr. King, and Mr. Bransby Cooper. The latter has recently made a valuable addition to the calculi, and rendered them more readily available to the student, by appending sketches to the section of each stone, so that the eye is at once directed to the different layers it contains. There are in all two hundred and seventy-eight specimens ; and with each there is given a chemical analysis, made by Dr. Golding Bird or Dr. G. O. Rees, and, of late, by Mr. Cooper himself.

This department has also been greatly enriched by a numerous series of models of diseases of the skin, which may with propriety be termed *clinical illustrations*. They form a valuable and unique contribution to this division of pathology. Amongst them are many rare, and some hitherto undescribed, forms of disease. They have been selected and classified by Dr. Addison, whose attention has been directed to this object, as opportunity afforded, during the last quarter of a century, and whose labours herein have proved him a worthy successor of Willan and Bateman, whose pupil he formerly was. They have been executed by Mr. Towne, who has here, as elsewhere, mastered the difficulties of his subject, and given a result which is truly wonderful.

Besides the preparations and drawings above named, there are 1,300 diagrams (or rather enlarged drawings), for the use of the lecturers on anatomy and physiology, surgery, and midwifery ; and 660 for comparative anatomy. There are also 330 pathological casts in plaster, shewing various deformities, dislocations, herniæ, etc.

The *Museum of Comparative Anatomy* occupies the left wing of the museum. It contains 2,550 specimens. The ground floor is principally occupied by skeletons, arranged in the Cuvierian order, from man downwards. The series is very complete, and contains many rare and valuable examples. In the galleries, the preparations of the normal organs are disposed in physiological sections, each of which is well illustrated : for example, of the nervous system there are nearly sixty dissections from the principal classes. The chief contributors have been Sir A. Cooper, Mr. Thomas Bell, Mr. Morgan, Mr. King, and the present lecturer on physiology, Dr. Gull.

The Museum of Materia Medica contains specimens of all the drugs and preparations in general use, under the different forms in which they are ordinarily met with in commerce, together with the principal adulterations. Dr. G. Bird has added a collection of the more rare *proximate principles*, which have a special interest in connexion with the recent advances in the chemistry of animal fluids. Although this department is not, from want of space, so commodiously arranged as might seem desirable, its usefulness for all practical purposes is proved by the fact, that the pupils from this school have, since 1842, obtained five exhibitions, and eight gold medals, at the University of London, on this subject. A plan for the construction of a laboratory for *practical* chemistry is under consideration, and will be carried into effect, so soon as a convenient spot for its erection can be determined upon.

THE LIBRARY contains 3,224 volumes. It is supplied with three weekly, six monthly, and five quarterly journals of medicine, natural history, and philosophy ; among which are the LONDON JOURNAL OF MEDICINE, also the *Archives Générales de Médecine*, *Annales des Sciences Médicales*, *Müller's Archiv*, *The Philosophical and Linnean Transactions*, *Taylor's Scientific Memoirs*, etc. etc. It is open to students daily, from nine to five, without additional fees. As during the day there is but little leisure for reading, each student is permitted to take home one volume, which must be returned by ten o'clock the following morning, under penalty of a small fine, or loss of privilege for a week. It is the duty of the librarian to register the names of those who avail themselves of this privilege, together with the books taken.

THE DISSECTING ROOM is of recent construction, and has many arrangements deserving notice. The dimensions are—length forty-six feet, breadth twenty-four feet six inches, and height twenty-four feet. The ceiling is vaulted. It is lighted by a lantern, or sky-light, thirty feet by twelve feet, glazed with large sheets of rolled plate glass. The floor is of asphalte, which has the advantage of warmth, and does not imbibe moisture. The walls are lined to the height of seven feet with slabs of slate, which are for the delineation of extemporaneous diagrams. It is ventilated by twenty grated openings, ten near the floor, and ten in the ceiling, communicating with a main shaft at some distance from the building. The result is very satisfactory ; for though no means are used for disinfection, the air is kept at all times pure. There is a large private room adjoining, for the demonstrators to receive their classes in, when demonstrating the different organs ; and the washing-rooms, etc., for the convenience of students, are all that could be desired. We would recommend the dissecting-room at Guy's as a model for similar buildings.

LOCK HOSPITAL.

The following are the names of the gentlemen composing the Medical Staff of the Lock Hospital, with the dates of their election.

CONSULTING PHYSICIAN. Dr. Sayer, *elected in* 1847.

SURGEONS. E. Cutler, Esq. and Samuel Lane, Esq., *elected respectively in* 1840 *and* 1848.

ASSISTANT-SURGEON. Henry Lee, Esq., *elected in* 1848.

The LOCK HOSPITAL, Harrow Road ; the Chapel and Asylum, Westbourne Green, are thus briefly described by Mr. Peter Cunningham, in his *Handbook of London, Past and Present* (edition 1850, p. 295) : "Supposed to be called '*Lock*' from the French *loques*, rags ; from the rags (lint) applied to wounds and sores ; so *lock* of wool, *lock* of hair. The hospital (the only one of the kind in London) was established in 1746, for the cure of females suffering from disorders contracted by a vicious course of life ; the Chapel, in 1764, as a means of income to the hospital ; and the Asylum in 1787, for the reception of penitent females recovered in the hospital. A subscription of three guineas annually entitles to one recommendation : 50*l.* as a donation, or 5*l.* 5*s.* annually, constitutes a governor. The Loke, or Lock, in Kent Street, Southwark (from which the present hospital derives its name), was a lazar-house, or 'spital for leprous people, from a very early period. There was a second betwixt Mile End and Stratford-le-Bow ; a third at Kingsland, betwixt Shoreditch and Stoke Newington ; and a fourth at Knightsbridge, near Hyde Park Corner. In one of these Locks, Bully Dawson died in 1699, aged 43. St. Giles'-in-the-Fields and St. James' Hospital in Westminster (now the Palace), were both instituted for the reception of lepers."

When the hospital was founded, in 1746, it occupied a building in Grosvenor-place. The lease having expired in 1842 ; and the ground being required for other purposes, it was removed to its present site. In the centenary report, printed in 1846, the following summary is given of the statistics of the institution. In perusing this table it is important to bear in mind "that no person is re-admitted, on any recommendation whatever, who has been discharged for irregularity, or has again received the infection" ; and

we are likewise informed in the centenary report, that "the house is almost always full, and that it is often necessary to postpone proper objects for want of room."

Patients cured—From January 1747, to 25th March 1845 ...			55,230
In-Patients cured—25th March 1845. to 25th March 1846 ...		312	
Out-Patients cured .....Ditto.....		170	
Eloped.....Ditto.....		35	
Discharged for ill-behaviour.....Ditto.....		16	
Died.....Ditto.....		1	
In-Patients—25th March 1846.....		42	
Out-Patients—Ditto		43	
		——	619
Total.....			55,849

In the report for 1850, it is stated that since the foundation of the hospital, 58,514 patients have been admitted and cured, and that during 1850, the number admitted and cured was 885.

We are astonished to observe the small amount of money which is collected. It is not only desirable that the miserable women who, sometimes from choice, but more frequently from necessity and to avoid starvation, are driven to prostitution, should have medical aid; but it is also most important, for the sake of the virtuous poor who go to general hospitals, that they should be kept separate, and afforded religious instruction and advice when under treatment. The following is the

Statement of Income and Expenditure for 1850.

Dr.	£.	s.	d.	Cr.	£.	s.	d.
To Balance 31st Dec. 1849 -	34	13	9¾	By Outstanding Debts of 1848 and 1849 paid off - -	885	13	0
Subscriptions - - - -	641	7	9	Loan Ditto - -	200	0	0
Donations - - - - -	432	16	3	Tradesmen's Bills 1850, *pt*	400	2	2
Legacy - - - - - -	100	0	0	Coals, Gas, etc. - - -	121	12	0
Sermons in Lock Chapel, and Chapel Boxes - -	161	1	9	Drugs (*part*) - - - -	39	19	0
Amount received by "special effort" of the Hon. A. Kinnaird - - - -	624	9	9	Expenses of Management	256	14	4
				Incidental Expenses - -	84	6	7¾
				In Treasurer's hand - -	6	2	2
	1994	9	3¾		1994	9	3¾

Liabilities outstanding 31st December 1850, about £680.

The present beautiful edifice was commenced in 1841. In April the necessary excavations commenced; and on the 29th of May, in the same year, his Royal Highness the late Duke of Cambridge—an efficient friend of this and other metropolitan charities—laid the foundation-stone, in presence of a large and distinguished assembly. The hospital furnishes accommodation for fifty male and fifty female patients. Some idea of the enormous expense which attends the erection and furnishing of a London hospital is afforded by the following account, which we extract from the third Report of the Building Committee, of date June 4th, 1842.

RECEIPTS.	£	EXPENDITURE.	£
Subscriptions - - - - - -	8,826	Purchase of Land - - - - -	4,790
Collection after a Sermon at Trinity Chapel, Conduit-street, by the Rev. H. H. Beamish - -	49	New Building - - - - - -	7,462
£4000 reduced three per cent. annuities at 90 - - - - -	3,600	Laying out Ground - - - - -	205
		Furniture and Fixtures - - -	600
		Incidental Expenses - - - -	500
	£12,475		
Deficiency to be supplied - -	1,082		
	£13,557		£13,557

Deficiency - - - - -		£1,082
Estimate—Wings - -	£5,000	
Chapel - - -	4,000	
		9,000
		£10,082

The Asylum was founded in 1787, in connexion with the old Lock Hospital, by the Rev. Thomas Scott, the pious and well known Bible commentator. In 1842 it was removed to its present site ; and in 1848-49 was enlarged to its present dimensions. When first founded, the asylum received only 16 inmates ; in 1842 it was enlarged, so as to receive 20 ; and now it is capable of containing 100. Since the foundation of the asylum, 1175 female patients of the hospital have been admitted—a majority of whom have been provided with situations, restored to their friends, or otherwise comfortably settled in life. At present there are generally about 45 in the asylum.

The accounts of the asylum are kept distinct from those of the hospital. The following is the official

Statement of Income and Expenditure for 1850.

Dr.	£.	s.	d.	Cr.	£.	s.	d.
To Balance 31st Dec. 1849	155	0	3	By Outstanding Building Debts of 1849 paid off	553	11	2
Subscriptions - - -	185	13	3	Tradesmen's Bills - -	362	19	9½
Donations - - - -	238	11	3	Coals, Gas, etc. - - -	84	14	3
Sermons in Chapel, and Chapel Boxes - - -	172	12	11	Expenses of Management - - - - -	128	1	4
Amount received for Work by Inmates -	383	11	6	Incidental Expenses -	52	7	6½
Interest on Stock - -	5	17	10	Balance in Treasurer's hands - - - - -	9	12	11
Legacy - - - - - -	50	0	0				
	1191	7	0		1191	7	0

Liabilities outstanding 31st December 1850, about £175.

A system of registration has been adopted at the Lock, which, if properly carried out, may afford much valuable information. The object of this system is to present in a condensed form the aggregate result of the cases received during the year. When each case is only taken in a separate form, the knowledge to be derived generally lies buried under a mass of unattractive detail, which few have either the time or the patience to wade through. But when the principal features of the cases are extracted and arranged in a tabular form, general results are strikingly displayed, and easily understood. We sincerely wish that the plan which has thus been commenced at the Lock hospital may in future years be carried out fully and accurately ; and we cannot help thinking that the same, or a somewhat similar system, might with advantage be adopted at other hospitals, and with reference to other diseases than the venereal. The inspection of the register, to which we have been kindly afforded access, while it shews that with a very little trouble much more might be accomplished than has hitherto been done, contributes valuable information.

Out of fifty-five cases of secondary syphilitic eruption, forty-six had never taken mercury properly for the primary disease. The history of the remaining nine cases is not given. In the forty-six cases, the previous treatment of which is recorded, we find that twenty-two had taken no mercury ; fifteen had taken it for a short period only ; and three had used it irregularly. In the remaining six cases, the effect of the mercury was either very slight, or excessive.

It is a very remarkable fact (already noticed in the London Journal of Medicine, vol. for 1849, p. 801), how very seldom it happens that cases of secondary syphilis present themselves at our London hospitals, where a properly regulated and sustained course of mercury has been employed in the treatment

of the primary disease. In almost all the cases in which that medicine has been used, and secondary symptoms have followed, it becomes very easy to point out the circumstances in the treatment which have prevented its legitimate action upon the system. When used without proper care, and without its effect upon the system being properly regulated and controlled, it not only fails to cure the disease, but actually leaves the patient in a worse state than if he had taken no medicine at all. The statistics which we have been able to collect upon this subject undoubtedly shew that a worse class of symptoms follow an ill-regulated course of mercury than where the disease is left to be combated by the unaided powers of the constitution. It may therefore become a serious question with those who are unwilling or unable to devote the requisite time and attention to a mercurial course, whether they had not better abstain from the use of mercurials altogether. But, on the other hand, where the remedy has been administered with due care and attention, the testimony we have appears greatly in its favour. Our tables of secondary disease show a comparative absence of cases in which a mild but sustained course of mercury has been used for the primary affection; and we therefore conclude that did circumstances permit, mercury might be so used in the treatment of this disease, as to reduce the number of those in whom any subsequent symptoms occur, to a few exceptional cases.

REPORTS OF SOCIETIES.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Tuesday, January 14, 1851.

Samuel Solly, Esq., Vice-President, in the Chair.

Large Fibrous Tumour of Uterus. By R. R. Robinson, Esq. A tradesman's wife, aged 40, pregnant with her third child, four days before her confinement, slipped down four stairs, without feeling any inconvenience, and on the same day caught her foot against a chair, from which she felt pain in her left hip, which recurred at times subsequently. She was confined at four o'clock in the afternoon; the labour was in every respect natural. The placenta was thrown off by uterine effort in a short time; the uterus contracted well, and there was no hæmorrhage. About two hours afterwards, she was seized with cold chills, and, upon being put to bed, was sick and faint. Mr. Robinson saw her five hours and a half after her confinement, and found her in a state of complete collapse. Fearing there was internal uterine hæmorrhage, and not feeling certain about the state of the uterus, he introduced his hand, and found that organ flaccid, but free from blood. By cold and pressure, and by keeping the hand some little time in the uterus, contraction of a feeble kind was produced, and also a somewhat improved condition of the system generally. She rallied a little, but never fairly got out of collapse; she lived ten days, and died apparently from atonic peritonitis. Upon dissection, twenty-four hours after death, the intestinal convolutions were of dark colour, being smeared with blood, and were united to each other and to the uterus, by recent and easily-separable adhesions. There were three pints of dark venous blood, without coagula, in the peritonæum. The tumour was covered with peritonæum, an elongation from the uterus, and this, at the angle of reflexion, was lacerated to the extent of two inches. Mr. Robinson was of opinion that the tumour had augmented much during the growth of the uterus, and that, in consequence of being entangled with the intestines, did not move so readily when the uterus contracted, as the uterus, and thus the peritonæum, being put upon the stretch by recurrence of pain, gave way.

Cases of Ruptured Liver, Lung, etc. By Athol Johnson, Esq. The author related five cases. In four of these, death occurred either directly

from the injury to the internal organs, or from injury to the spine, at intervals varying from two or three days to three weeks. In one case, in which the patient lived for three weeks, dying then from injury to the spine, the liver, which had been extensively lacerated, was found to have nearly united. In another case there was strong reason to believe the liver had been ruptured, but the patient recovered, and of course this point could not be demonstrated. The patient, however, a little girl, was admitted into St. George's Hospital, in consequence of having been run over by a cart, which passed over her belly. She was in great pain in the abdomen ; much collapsed ; and the face was pale and exsanguined. She, however, recovered. The five cases had occurred in one year, during which the author had been house-surgeon to St. George's Hospital. The prognosis, in those cases where the injury was great, was unfavourable ; but where it was moderate, recovery might take place. In one of the cases detailed, the patient, after living three weeks, died from the spinal injury ; the liver and kidney, which had been lacerated, being found, on examination, to be nearly united. This showed the power of reparation in such cases. With respect to treatment, the author refrained from the use of brandy and stimulants, in the stage of collapse, because they would tend to the production of further hæmorrhage : the patients were to be kept quiet, and not allowed to make any exertion whatever ; the bowels were not to be disturbed by purgatives for two or three days, and full opiates were to be given. The necessity of quiet was much insisted upon, as in two of the cases detailed the patients had died suddenly, from change of posture in getting out of bed.

MISCELLANEOUS INTELLIGENCE.

Clinical Medicine and the Society of Apothecaries. We are happy to give insertion to the following correspondence between Dr. Nelson, the Professor of Clinical Medicine in Queen's College, Birmingham, and the Court of Examiners of the Society of Apothecaries.

To H. Blatch, Esq., *Secretary to the Society of Apothecaries.*

Queen's College, Birmingham, Dec. 12, 1850.

Dear Sir,—Will you oblige me by giving me some clear and settled idea on the following subject. Your Society's rules, as exhibited in the Student's Number of the *Lancet* (Sept. 28, 1850), declare very distinctly, that each student who commenced his studies on or after Oct. 1, 1849, must produce, before his examination, certificates of having attended a summer course of lectures in clinical medicine during his second year, and a winter course during his third. Physicians of hospitals, according to duty, are naturally desirous of doing all in their power for pupils ; at the same time, it must be confessed that their lectures are seldom attended by the body of clinical students. Now, this is found to be due to an existing impression, both among students, and some professors, that the certificates of such attendance, though stated as necessary in your printed rules, are not *imperative* or *essential*, but simply *formal*. I quite coincide with the important view which your board attaches to clinical instruction ; but should like to be assured, on undoubted authority, that the rules laid down in this respect are really meant to be carried out, and that the Court intend to second the efforts of clinical professors by looking as much to their certificates as to those of others. So far as I can learn, similar impressions seem to exist amongst the students of other English schools ; and therefore the board, in their accustomed zeal for improving medical education, might, perhaps, with advantage, take some means of making their sentiments decidedly understood throughout the country. The clinical professors have no pecuniary interest in this matter, as all is included in the hospital fees, and therefore, while endeavouring to excite some zeal for practical study, they only desire the real welfare of their students. That much ardour, to a certain extent,

does exist here, is proved by the fact of twelve gentlemen having put down their names, voluntarily, for examination by me; but I do think it only just to such as entertain the above impression, that the rule should be clearly understood; as, in the event of any such impression being continued, and proving erroneous, they might, at the end of their three or four years of study, and just, perhaps, as they looked forward to some immediate appointment, find themselves in a very awkward and unexpected relation to your board, such as might damage their worldly prospects through life.

I am, dear Sir, your faithful servant,

D. Nelson, M.D. Edin.,
Physician to the Queen's Hospital, and Professor of Clinical Medicine.

To Dr. D. Nelson, *Queen's College, Birmingham.*

Dear Sir,—The Court of Examiners of the Society of Apothecaries have directed me to forward to you the following reply to your letter of the 12th inst.:

That the Court of Examiners do not desire to limit, or to define the plan to be pursued by the physicians of hospitals in delivering clinical instruction to their pupils; but the Court wish that it may be distinctly understood that they consider such instruction as imperatively necessary, and that attendance upon it should be enforced in such a manner as the physicians may think expedient.

The Court, in proof of their desire to encourage a regular and definite system of clinical instruction, beg to refer to the last copy of their regulations, p. 10, wherein it is stated that a certificate of attendance upon a course of not less than seventy-five lectures on clinical medicine, delivered by a distinct professor, will be received in place of the second course upon the theory and practice of medicine.

But, as some of the schools are not yet provided with distinct professors of clinical medicine, the court at present leave the mode of clinical instruction to be arranged by the physicians; but they repeat that they consider such instruction to be *imperative* in all the schools, and that the part of the schedule appropriated to clinical lectures should be filled up only after a *bonâ fide* attendance, as in the case of the other lectures.

I remain, dear Sir, etc.,

Dec. 27, 1850. Henry Blatch.

Notwithstanding the innumerable facilities which are offered in this metropolis to the pursuit of medicine as a practical science, it is lamentable to observe the general neglect of clinical instruction on the part of both teachers and students. We fear that a systematic plan of clinical medicine is adopted at very few of our great hospitals; and we shall be rejoiced if the efforts of the Examining Boards should have the effect of bringing this important subject more fully under the notice of those, to whom are entrusted the management of the sick and the education of the students. With much zeal, and most praiseworthy energy on the part of many of the teachers, we fear, that even when clinical lectures are regularly delivered, the object and purpose of clinical teaching are too often misunderstood. It is too often the fashion to fill clinical lectures with the accounts of rare and severe operations, and with disquisitions upon the history of unusual or obscure diseases, while but little pains are taken to impress upon the minds of the students the leading features of the pathology and treatment of those common forms of disease, which will fall to the lot of every practitioner to treat in his professional career. To prepare an elaborate lecture upon one particular case of disease requires a great expenditure of time and of research, and the result, after all, may not be practically useful; while a lecture delivered extemporaneously upon such of the cases, whether common or otherwise, as may present themselves during the physician's or surgeon's visit,

requires but little preliminary labour on the part of the well-informed teacher, and is attended with a far more practically useful result to the hearer. A common ulcer, or a simple pleurisy, may form an appropriate text on which the clinical professor may build a discourse pregnant with instruction to his pupils; and if it be said that such cases are of common and every-day occurrence, we reply, that that is the very reason why they should be frequently dwelt upon. The subject of clinical teaching is too extensive to allow us to enter into it at large upon the present occasion, but we shall return to it at a future opportunity.

Treatment of Union Surgeons by Poor-Law Guardians. An inquest was lately held at Heywood, on the body of Edmund Wild, aged 71, who died in the Bury workhouse. He had fractured the thigh-bone, and, after being admitted into the workhouse, died while under the care of Mr. Hinxman, one of the surgeons, from the effects of a bed-sore, the Board of Guardians having resolutely refused to supply either a water-bed or one of Hooper's cushions. At the inquest, the clerk to the Board said that the man died from injudicious treatment by the surgeon. The jury, however, in their verdict, censured the Guardians for want of proper attention to the deceased, in not forwarding such means as, in the opinion of the medical officers, were considered essential for obviating his disease, or endeavouring to make it less painful or fatal. An analogous case has also occurred at Southampton, in which the Guardians sought to fix blame on the medical attendant, on the ground that he had not detected a disease of the kidneys, which was discovered after death. The woman had been reported as suffering from disease of the liver; and had been refused out-door relief. The jury passed a vote of censure on the Guardians.

Honours conferred on Dr. De Carro, the disciple and friend of Dr. Edward Jenner. The Emperor of Austria has lately conferred the golden cross of the order of Civil Merit on the Chevalier Jean De Carro, M.D. (born at Geneva in 1770), the friend and apostle of Edward Jenner. After the ceremony, a banquet was given in honour of Dr. De Carro by M. Knoll, burgomaster of Carlsbad in Bohemia, where Dr. De Carro resides. During the evening, a collection was made for some poor families of the place. [Abridged from *Lancet*, Jan. 18th; and *Daily News*, Jan. 14th.]

The late Robert Liston, Esq. The Queen has lately granted a pension, of 100*l.* per annum, to the widow of the late Robert Liston, the eminent surgeon.

Testimonial to Dr. Paul of Elgin. Dr. Paul, of Elgin, a gentleman known to the profession by several original publications, and as an eminent practitioner for the last thirty years, has been lately requested to sit for his portrait, which, when finished, was presented to his family by a deputation composed of the magistrates and clergy of the town, as the spontaneous expression of gratitude for professional services, and respect for his long-tried character and conduct.

Adulterations of Articles of Food. The *Lancet* has commenced a series of valuable articles on the adulterations to which various substances, used as food, are subjected. The subjects which have been already noticed are coffee (January 4th) and sugar (January 18th and 25th). The microscopic and chemical characters, both of the pure substances, and of the adulterations and impurities are detailed, and illustrated by woodcuts; and the results of the examination of various specimens, procured from the shops, are given in detail. Great credit is due to the editors of the *Lancet* for the publication of the reports of their "Analytical Sanitary Commission". We heartily wish that their success, in promoting the dietetic welfare of the community, may be commensurate with the labour which they are bestowing on the subject.

Bequests to Hospitals. The late Thomas Ansaldo Hewson, Esq., has bequeathed the sum of 1000*l.* to University College Hospital, and 500*l.* to King's College Hospital. The late Mr. Bethune Morrison, of Naughten, Scotland, has left 500*l.* to the Dundee Royal Infirmary, and 200*l.* to the Dundee Lunatic Asylum. The executors of the late Colonel Cheape, of Girgenti, have paid 1500*l.* to each of five Infirmaries in Scotland.

Quintuple Birth. The *Deutsche Klinik* for November 23 states, that on the night of the 11th of that month, a peasant's wife, at Alt-Rehfeld, was safely delivered of five living male children. One lived three hours, another twelve; the other three survived. The mother was doing well.

APPOINTMENTS.

Bond, Dr. H. J. H., appointed Regius Professor of Medicine in the University of Cambridge, in the room of the late Dr. Haviland.
Childs, G. Borlase, Esq., elected Surgeon to the Metropolitan Free Hospital.
Pidduck, Dr. Isaac, elected Physician to the Bloomsbury Dispensary.
Ramskill, Dr. J. S., elected Physician to the Metropolitan Free Hospital.
Richardson, Dr. W., elected Physician to the Metropolitan Free Hospital.
Sandie, Dr. J. G., elected Physician to the Liverpool Dispensary.

OBITUARY.

Bailey, Dr., in Jamaica, of cholera, lately.
Brown, Dr. John, at Boston, aged 51, from suicide by prussic acid, on Jan. 9th.
Brownson, Dr. W. H., late Surgeon to Her Majesty's 2nd West India Regiment, at Brompton, aged 37, on 21st December.
Chambers, Dr. John, in Jamaica, of fever, lately.
Crichton, Dr. H. P., in Jamaica, of cholera, lately.
Duncan, John W., Esq., Assistant-Surgeon R.N.
Ewart, Dr. John, in Jamaica, of fever, lately.
Fishbourne, Dr. T. M., in Jamaica, of fever, lately.
Froom, T. N,, Esq., at Dunsford, near Exeter, aged 35, on 6th December.
Haviland, Dr. John, thirty-three years Regius Professor of Medicine in the University of Cambridge, aged 65, on 8th January.
Hickman, William, Esq., at Great Marlow, Bucks, aged 94, on 24th December.
Leuret, M., late Physician to the Bicêtre, Paris, at Nancy, lately.
Link, Professor, at Berlin, lately. He was celebrated as a botanist, and a writer on Natural Philosophy and Science.
Lucas, Dr., Assistant-Surgeon, 61st Foot, at Peshawur, in October last.
Macfadyen, Mr., in Jamica, of cholera, lately.
McDermott, Dr. C., in Jamaica, of cholera, lately.
Miles, Dr. John, at Bukee, aged 77, on 14th December.
Murcott, Dr., in Jamaica, of cholera, lately.
Palmer, Dr. A., in Jamaica, of cholera, lately.
Philip, John, Esq., Assistant-Physician R.N., at Edinburgh, on 13th December.
Scale, Dr. John D., at 7, Taunton Place, Regent's Park, of pneumonia, aged 36, on 21st December.
Scriven, Dr. G. A., at Deptford, from suicide by oxalic acid, aged 34, on Dec. 25th.
Squair, Dr. John, late Surgeon 8th Hussars, at Portobello, on 14th December.
Tabois, Dr., in Jamaica, of cholera, lately.
Tait, Dr., in Jamaica, of cholera, lately.
Wood, Dr. J. R., late of Glasgow, at 19, George Street, London, on 25th December

BOOKS RECEIVED.

Fleming (Dr. Alexander) Introductory Address on Medical Education. Dublin: 1850. Monro on Insanity. Part II. London: 1850. Pharmacopœia Nosocomii Morborum Cutaneorum. Londini: 1850. Radcliffe on Vital Motion. London: 1851. Report (Eleventh Annual) of the Crichton Asylum. Dumfries: 1850. Wegg on the Science and Art of Medicine. London: 1851. Wilson's Anatomist's Vade Mecum. Fifth Edition. London: 1851.